

COMPUTERWORLD

JavaScript can trace user tracks

By Frank Hayes

Corporate Internet users who haven't yet upgraded to Netscape Navigator 2.0 may want to put it off again.

Web site developers experimenting with Navigator 2.0's JavaScript scripting language have discovered how to create World Wide Web sites that can eavesdrop on users until they end their browsing session — long after they believe they have left a nonsecure Web site.

In response, Netscape Communications Corp. in Mountain View, Calif., last week quietly put a Navigator upgrade — Version 2.01, which allows users to shut off JavaScript — on its Web site for downloading.

That is a relief to corporate users with large intranets. "We have not yet rolled out 2.0, but anytime you have something that has unknown or unwanted side effects, it's a concern," said John Swartzendruber, an information consultant at Eli Lilly & Co. in Indianapolis. His internal internetwork has more than 7,000 users.

JavaScript isn't related to Sun Microsystems, Inc.'s Java Internet programming language, de-

JavaScript, page 113

Shifting LANscape

NetWare managers launch 'net forum

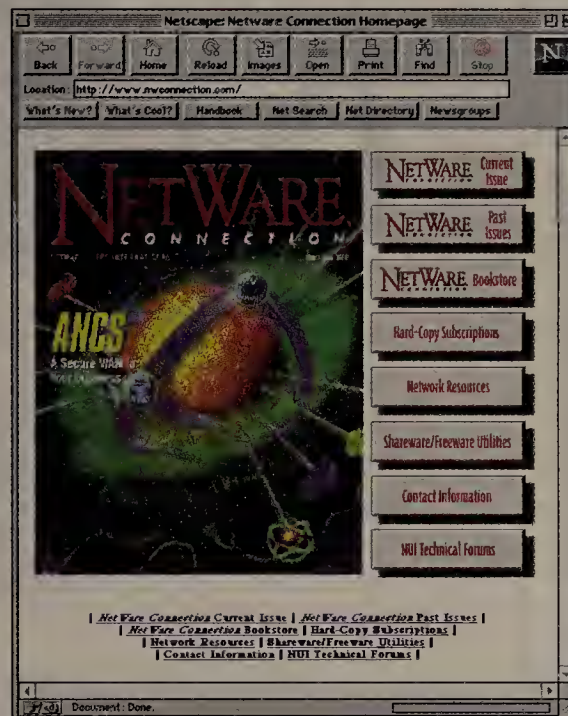
By Patrick Dryden

NetWare administrators who are frustrated with vendor-controlled support services and the chaos of NetWare-specific Internet newsgroups now have a better option: www.nuinet.com.

At Novell, Inc.'s BrainShare developer and user conference this week, NetWare Users International will inaugurate a technical forum dubbed NUI.net. It is free to user group members and anyone else responsible for NetWare 3.x and 4.x environments and related products.

Even better, the opinions and remedies provided through NUI.net don't reflect the vendor's party line, even though Novell backs NUI.

NetWare, page 113



NetWare Users International now offers an independent support forum at www.nuinet.com. The peer-run forum is already receiving good reviews.

Unrest may spur server fee revamp

By Laura DiDio and Tim Ouellette

Picture this. You're a product manager trying to get statistics for a year-end report that was due on your boss's desk yesterday. But your efforts to retrieve the data from the file server — normally a routine task — fail. You can't access the data because the server has locked you out.

Why? Because Novell, Inc. and Banyan Systems, Inc. are still selling outmoded server-based licensing schemes that befuddle businesses, can cost big bucks, lock users off the server and sometimes cause companies to unknowingly violate the licensing pacts.

Microsoft Corp., meanwhile, is cleaning up with Windows NT Server.

Price, page 113

Cheap Pentium Pros go mainstream

By Jaikumar Vijayan

A series of upcoming price cuts from Intel Corp. is expected to make Pentium Pro systems far more affordable for corporations looking at the more robust Windows NT platform down the road.

Analysts said they expect Intel to roll back Pen-

tium Pro prices by 20% to 40% during the next several months. That would drop the price of a 150-MHz chip from \$804 to less than \$600 and that of a 180-MHz chip from \$911 to \$730, according to Semico Research Corp. in Phoenix.

This pricing action is expected to prompt hardware vendors to split their mainstream PC lines into two product streams to address the continuing toss-up between Windows 95 and Windows NT in some major corporations.

One line will comprise Pentium-based systems loaded with both Windows 3.11 and Windows 95. The other will have Pentium Pro systems preload-

Pentium Pro, page 16

Chip ahoy

Intel in May will announce a high-end 200-MHz Pentium Pro chip with a 512K-byte cache. The chip will cost \$1,528 — about 23% less than Intel's originally planned introductory price of \$1,989.

Lotus hitting slow Notes with 4.0

By Tim Ouellette

Some early customers are running into performance problems — mainly associated with slow response times — on the Windows NT version of Notes 4.0, Lotus Development Corp. acknowledged last week.

The problem is just a small crack in an otherwise seamless rollout of the upgraded groupware. But observers said many Notes users are opting for Windows NT, so early signs of trouble bear

watching. Most users are finding that Notes 4.0's performance is better than that of earlier 3.x versions, but they also say Release 4.0 is memory-hungry and requires tweaking and testing to run smoothly.

Performance gaps

Several reports of slow Notes performance have surfaced among users of single-processor Windows NT servers. "We are running a [Notes 4.0] NT server that is performing horribly," said one user on an on-line forum. He said the server bogs down even though only about six people are accessing Notes off his single-processor machine.

Some users are experiencing response

Slow Notes, page 12



WHAT'S INSIDE

■ Cisco details sweeping two-year SNA networking product plans. **See story, page 6, by Bob Wallace.**

■ IS managers in the insurance industry face a host of thorny problems, from object technology to year 2000 conversion issues. **See stories, page 16, by Thomas Hoffman.**

◀ Tampa Electric is automating its year 2000 conversion process to battle costs and downtime. **See story, page 71, by Craig Stedman.**

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Cybrarian
to the rescue

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Did you write off mainframers? Well, write 'em back in — they've found new life as middle managers. See Managing, page 74



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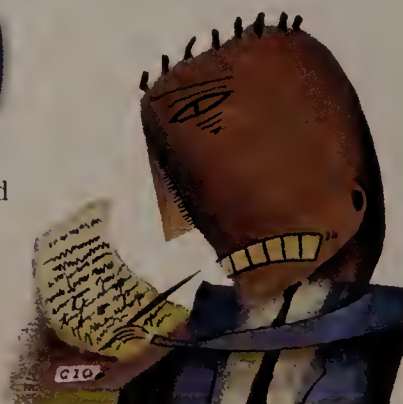
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Evaluating the CIO

Just what is the chief information officer's role in your organization? Grab a pencil and find out by taking a CIO leadership test.

COMPUTERWORLD
•Leadership Series•
follows page 32



What Broadway show was the first to use computer-controlled lighting?
The answer is in these pages! Now through May you can play COMPUTERWORLD's game of information retrieval — and turn trivia into treasure!
See page 29 for "everything you need to know to win!"



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Digital snafus

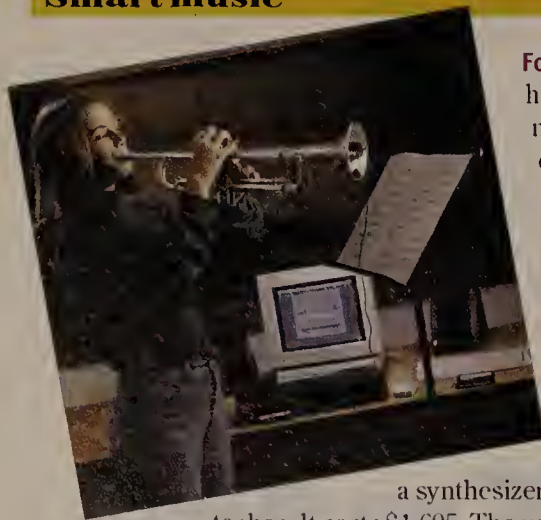
A programming error led The Chase Manhattan Bank NA to send default notices to 11,000 secured credit-card customers recently. The letters should have gone to only 89 customers, *Bloomberg Business News* reports.

New York City's database of stolen cars brought unwarranted grief to two motorists last month, the *New York Daily News* reports. Lester Luis of Queens said he was roughed up and arrested after the cops pulled over his car because the computer said it was stolen. Lebert Folkes was shot in the face by police officers who stopped him after the computer said Folkes was driving a stolen car. Both cases involved cars that were reported stolen and then recovered — but the database hadn't been updated.

Computer glitches are common in leap years [CW, Feb. 26], and this year was no exception. Consider the following incidents:

- About 60,000 people couldn't buy Fantasy 5 lottery tickets in Arizona Feb. 29 because the lottery machine software didn't recognize the leap day, the *Arizona Republic* reports.
- Lab equipment software used by heart surgeons at Papworth Hospital in the U.K. wouldn't function Feb. 29, so laboratory analyses had to be done by other labs that use a different vendor's equipment, the *Times* (U.K.) newspaper reports.
- Higher cab fares went into effect in New York City March 1. But the meters programmed by one company in Queens forgot about the leap day and charged the higher rate Feb. 29, *The New York Times* reports.

Smart music



For music students, those long hours of solo practice may be more productive with a computerized practice partner from Coda Music Technology in Eden Prairie, Minn. The Vivace Intelligent Accompaniment system uses patented technology that follows a soloist's tempo changes just like a human accompanist. The system includes clip-on microphones, a foot switch,

a synthesizer and software for PCs or Macintoshes. It costs \$1,695. The vendor offers thousands of musical compositions on game-style cartridges so students can, for example, practice the flute solo for a Mozart concerto or improvise with a jazz quartet.

News to ponder

A St. Louis family was shocked to find that its new laptop computer came bundled with child pornography. The couple is suing CompUSA in Dallas after they and one of their children accidentally viewed a pornographic file on what they thought was a new system. The couple is seeking \$1 million for emotional distress and \$10 million for alleged consumer fraud. CompUSA officials say the company is sorry [about the incident] but defends its policy of repackaging returned computers as new if all manuals and software remain sealed. — Patrick Dryden



Nabisco has unveiled its Web site at <http://www.nabisco.com>. Visitors can chew through the history of Lorna Doone cookies, scan the company's quarterly financial results or search for recipes that use Oreos, Teddy Grahams or Cream of Wheat. — Stewart Deck

Remember those chairs in school that had a writing surface extended from one arm? BodyBilt Seating in Dallas offers the X-Tension Arm, an adjustable surface for keyboard, mouse or laptop use. It costs \$400.

Human Factors

A wrist rest won't help. An adjustable keyboard tray won't help.

But a study of ways to prevent carpal tunnel syndrome from frequent keyboard use found one thing that helps. "Placing a conventional keyboard on a downward-sloping surface that tilts the base of the keyboard away from the user" helps users keep their wrists in a straight, comfortable position, a new field study confirms.

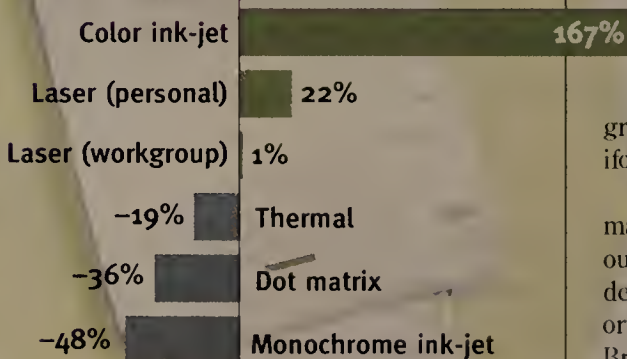
This counterintuitive finding is reported in the January issue of *Ergonomics in Design*, published by the Human Factors and Ergonomics Society in Santa Monica, Calif.

Researchers said [in general] keeping the wrist in a "neutral" or flat position relieves pressure on the nerves that run through the wrist's carpal tunnel.

Tilting the keyboard back tends to keep the typist's wrists in that neutral zone more than the other methods studied, according to a research team headed by Alan Hedge at Cornell University in Ithaca, N.Y.

— Mitch Betts

1994 to 1995 printer sales growth rate



Source: Computer Intelligence InfoCorp, La Jolla, Calif.



News shorts

Sun's Netra goes 64-bit

Sun Microsystems, Inc. next week will introduce 64-bit versions of its Netra Internet servers, sources said.

The machines are expected to narrow a performance lead held by Silicon Graphics, Inc. (SGI) in the high-end commerce server market.

Sun historically has been the top vendor of World Wide Web servers, but SGI is on the offensive with its 64-bit hardware and WebForce technology, said Clay Ryder, an analyst at Zona Research, Inc. in Redwood City, Calif. The UltraSPARC-based Netras should get Sun "back in the same league," he said.

USWeb Corp. wants to franchise Web developers

A group of former Novell, Inc. executives last week launched a venture dedicated to bringing the franchising model of business to the Internet.

USWeb Corp. in Santa Clara, Calif., said it wants to sign up small Web developers in every major U.S. city and offer them centralized administration, marketing, research and development, plus the cooperative buying power of a large corporation.

"The reason we chose the franchise model," said Joe Firmage, chairman and CEO of USWeb, "is that you retain the incredible creative talents of the entrepreneurs while giving them the infrastructure of a large corporation."

Microsoft program to improve ISDN ordering

There may be help on the way for users who find that ordering ISDN makes *A Nightmare on Elm Street* seem like a Walt Disney film.

Microsoft Corp. last week launched Get ISDN, under which Windows users can order an Integrated Services Digital Network (ISDN) line over the Web.

US West Communications, Inc. was the first carrier to join the program; users now can order ISDN in 11 of the 14 states in the carrier's territory. The other three states will be added in the third quarter.

Pacific Bell, the local carrier that led the industry in ISDN deployment, has also joined the program. It offers the service in 90% of California.

"It sounds slick and simple, but it remains to be seen if these two can wipe out the single biggest obstacle to ISDN deployment," which is the process of ordering ISDN service, said Daniel Briere, president of TeleChoice, Inc., a consultancy in Verona, N.J.

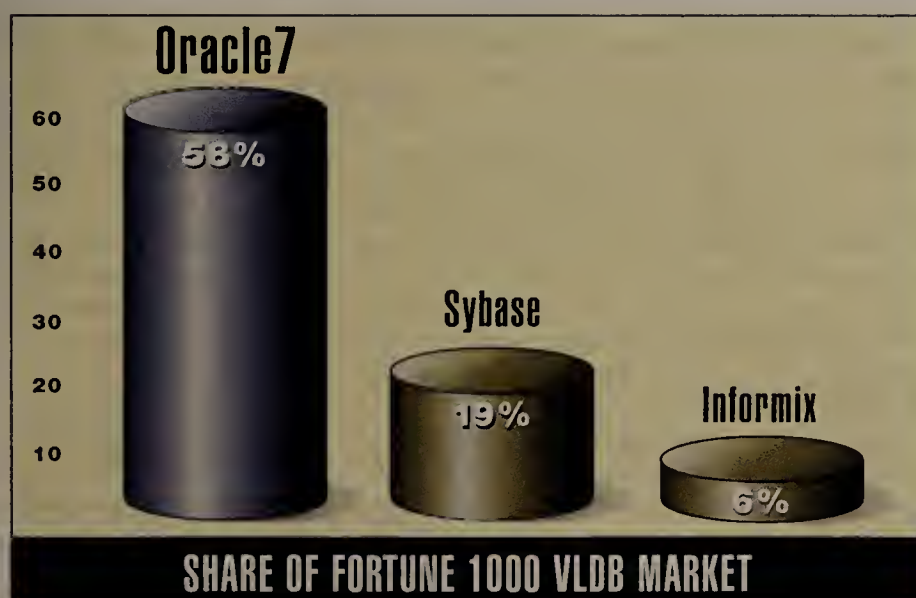
To use the program, users can dial in to Microsoft's Get ISDN Web site at <http://www.microsoft.com/windows/getisdn/>.

For more News shorts, see page 8

Data Warehouse Comparison

Data warehouses are central information repositories for storing and analyzing vast amounts of historical and reference data from a number of different sources. Oracle7 has many more features for data warehousing than any other DBMS.

Features	ORACLE7	Sybase System 11	Informix 7.2
Production Terabyte Databases Supported	Lots	Zero	None
Scalable SMP Support	Yes	Not Quite	Yes
Scalable MPP Support	Yes	No Way	No
Parallel Query	Yes	Nope	Yes
Parallel Load	Yes	Yes	Yes
Parallel Index	Yes	No	Yes
Fault-Tolerant Parallel Server	Yes	Never	No
Parallel User-Defined Functions	Yes	Nope	No
Bit-Map Indexes	Yes	Yes	No
Star Query Optimization	Yes	No Way	No
Integrated Replication	Yes	No	No
OLAP/Multidimensional Support	Yes	Sorry	No
Video Storage & Playback	Yes	Nyet	No
Text Storage & Search	Yes	Not	Yes
Spatial Data	Yes	Never	No



Study fielded 6/26-9/1/95. Based on a census of the F1000 who are running UNIX and have a single DB ≥ 50GB. Source: IDC.

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Digital first out with ultraslim subnotebooks

By Mindy Blodgett
and Jaikumar Vijayan

Digital Equipment Corp. last week fired the opening salvo in a brewing vendor war to grab the lead in the emerging ultraslim notebook market.

Digital is the first to hit the street with a subnotebook, but users will soon have lightweight notebook offerings from several vendors. These computers generally weigh less than 5 pounds and measure a little more than an inch high.

Many vendors are convinced there are customers for ultrathin machines, but some industry observers caution that the untested market may prove risky. For instance, notebook market leader Toshiba has no plans to introduce a subnotebook.

"The new lightweight notebooks are a very interesting and exciting development," said Bill Ablondi, an analyst at Giga Information Group, Inc. in Cambridge, Mass. "We'll have to see if the trend catches on with users."

IBM PC Co. has said that later this year, it will release an ultraportable model that will weigh 4 pounds, measure 1 1/4 in. thick and have a 12.1-in. screen. Compaq

Computer Corp., Dell Computer Corp., NEC Technologies, Inc. and Texas Instruments, Inc. are reportedly gearing up to enter the fray as well.

These subnotebooks sacrifice little in the way of performance, according to industry analysts. Built on 100-, 120- and 133-MHz Intel Corp. Pentium processors, the ultrathin notebooks incorporate a technique called "slicing," wherein add-on modules allow them to be expanded.


For instance, the Digital HiNote Ultra II, available immediately in limited quantities, can become a portable multimedia notebook when a slice — the Mobile Media Module — is added. The notebook gets CD-ROM capabilities and weighs 6 pounds.

But industry analysts wonder if users will pay for the sophisticated engineering needed, which puts the cost of lightweight notebooks between \$3,000 and \$5,000. Analysts are also concerned about the potential fragility of the new design.

Douglas Moran, an information systems analyst at CRSS Constructors, Inc. in Denver, said that while he is interested in lighter notebooks and modularity, his main goal is to provide feature-

Slices and dices

<p>New features of Digital's HiNote Ultra II</p>	<p>Processor: 100-, 120- and 133-MHz Pentium</p> <p>Dimension: 1.1-in. thick</p> <p>Weight: Under 4 pounds</p> <p>Screen: 10.4-in., Super VGA, active-matrix color</p>
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Price: \$3,000 to \$4,699 (HiNote Ultra II); \$4,999 to \$5,999 (HiNote Ultra II with Windows NT)

1 Removable hard disk drive: 810M bytes to 1.35G bytes of storage and up to 40M bytes of memory

2 Mobile Media Module: Attaches to the bottom and adds multimedia and CD-ROM capabilities. It makes the notebook 2 inches thick and weigh 6 pounds.

3 Port replicator

rich notebooks for his users.

"I have users who are not interested in any trade-offs," Moran said. "A couple of pounds is not as important as palatable CD-ROM and multimedia features." Toshiba America Information Systems, Inc. is taking a wait-and-see approach. Jeffrey Friedrichs, vice

president of product marketing, said that while the company isn't ruling out ultraportables, "we just don't have a lot of compelling research that says the customers are clamoring for this. It's a craze, and we'll see where it goes, but right now, we don't think there are the right trade-offs."

As for Digital, analysts say the new portables are unlikely to turn the company into a market leader, but they say it has made some smart decisions.

& Remote access works best with up-front training and support. See page 51.

Cisco maps SNA network plans

Covers LAN switches, WAN features and management tools

By Bob Wallace

Cisco Systems, Inc. last week laid out a wide-ranging, two-year plan for wares that will let information systems managers at IBM shops build switched internetworks, merge duplicate networks and manage SNA network performance.

Called CiscoBlue, the road map details cheaper and more flexible LAN switching products, new wide-area network features and an array of tools that go beyond basic network management.

Nick Lippis, president of Strategic Networks Consulting, Inc. in Rockland, Mass., said the blueprint solidifies Cisco's lead over all other internetworking vendors in the SNA networking market. "CiscoBlue covers an awesome array of SNA connectivity hardware and software," Lippis said. "They're ahead of everyone, including 3Com, Bay and IBM itself."

The blueprint calls for a major assault on the Token Ring switch-

ing market: Cisco will ship in 60 days a stackable Token Ring switch jointly developed with IBM that will have eight ports, can be expanded to 16 ports and can be stacked eight units high. The switches will cost roughly \$700 to \$800 per port.

Network management

Scheduled to ship in the months that follow are Fiber Distributed Data Interface and Asynchronous Transfer Mode uplinks for the switch. Later this year, the vendor will ship a Token Ring switching module for its high-end Catalyst 5000 LAN switching hub.

Inexpensive Token Ring

By mid-1997, Cisco pledges to roll out a Token Ring switch that will cost \$350 to \$400 per port, which is what users pay today for shared-capacity Token Ring hubs.

"Token Ring switching is a major market because about 50% of clients on Token Rings support mission-critical applications as opposed to 12% of Ethernet clients,"

said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy. (Ethernet has the larger installed base.)

"With this plan, Cisco is serving notice that it's going to force down Token Ring switching prices, a move that will put heavy pressure on smaller vendors like 3Com and Madge to follow suit," Nolle said. Bigger players have more expensive switches.

That would be good news for one user.

"We're interested in Token Ring switching for our administration department, but we really want to see the price per port come down to parity with Ethernet switches," said Mohammed Fatmi, a network manager at North Carolina State University, which is a 3Com shop. "Greater competition could make that a reality, but, in the meantime, we're on hold for Token Ring switching."

& Novell readies NetWare version that integrates IPX and TCP/IP. See page 55.

IBM paints RMAC Array as fill-in for delayed Seascope

By Bob Francis

IBM last week souped up its RMAC Array family of mainframe storage systems to mollify users until its long-awaited Seascope system hits the street late next year.

The RMAC line will get faster data transfer rates and new features for disaster recovery and data migration.

The enhancements come at a time when IBM has been battered by competition from EMC Corp. in the high-end disk drive market.

IBM also has been hurt by delays in Seascope, a storage subsystem scheduled for release next year [CW, Jan. 2].

The delays have cost IBM dearly. EMC surpassed IBM in mainframe gigabytes shipped last year, with a market share of 41% compared with IBM's 35%, according to International Data Corp. in Framingham, Mass.

The RMAC Array enhancements will be available June 26. They were announced at CeBit, a

computer trade show, last week in Hannover, Germany, and include the following:

- Improved disaster recovery and data migration features that use remote copy services, which provide users an off-site copy of data in case of a disaster.

Mainframe storage

- Increased allowable distance between Escon-attached 3990 Model 6 units and host processors of 27 miles, more than double the previous distance.

- A new track format to move data that resides on older 3380 systems to the new RMAC Array family and 3990 Model 6 Storage Control systems.

- A new 4G-byte maximum cache for greater throughput, and 128M bytes of nonvolatile storage for improved subsystem performance.

The company also has added Escon-attachment capability to its Magstar 3590 tape storage line, which will allow mainframe customers to attach their systems to the tape drive.



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Network OLE too narrow

By Frank Hayes

Maybe Network OLE is trying to solve the wrong problem.

While Microsoft Corp. puts the finishing touches on its Network OLE, which will let Windows applications communicate across a network, corporate information systems shops are saying that making Windows-to-Windows connections isn't their big problem.

"We have a large supply of legacy applications and legacy programmers, and almost everything we do involves mainframe transactions," said Timothy M. Tully, vice president of architecture and technology at T. Rowe Price and Associates in Baltimore. "We want to be able to use Excel or Visual Basic to make those connections."

Other vendors are responding to those concerns. They are jumping in with products that will let users connect Windows applications on different machines on a network, including mainframes and Unix servers.

Open Environment Corp. in Boston last week announced OLEEnterprise, a networked version of OLE that lets Windows connect with applications that run on IBM's mainframe MVS and Unix systems from Sun Microsys-

tems, Inc., Hewlett-Packard Co., IBM and Digital Equipment Corp.

That sounds a lot more appealing than Network OLE by itself, corporate developers said. "OLE to OLE is pretty slick to see, but I don't see us having a lot of use for that," said Tully, who is evaluating OLEEnterprise.

OLEEnterprise is scheduled to ship April 30 and will cost \$249 per developer. The product is an extension of Open Environment's Entera middleware, which handles communication between machines and offers support for se-

Good communication skills

The following products allow OLE-based applications to communicate networkwide

VENDOR	PRODUCT	CONNECTION
Next Software Redwood City, Calif.	D'OLE	Connects OLE to OLE or NextStep
Open Environment Boston	OLEEnterprise	Connects OLE to OLE, Unix or MVS
Microsoft Redmond, Wash.	Network OLE	Connects OLE to OLE



T. Rowe Price's Timothy M. Tully says Network OLE doesn't address legacy connections

curity, user authentication and systems management.

Network OLE will bring many of the same features to communications between Windows-based PCs and servers when it ships as part of an upgrade to Windows NT later this year. But Microsoft isn't rushing to make OLE-based connections with

other platforms. The Redmond, Wash., software giant late last year signed Software AG of North America, Inc. to port OLE to MVS and other enterprise systems. Those products won't be available until at least late 1997.

Microsoft vows amends on late VBA for Office

By Lisa Picarille
SAN FRANCISCO

Microsoft Corp. officials last week acknowledged they dropped the ball on delivering Visual Basic for Applications (VBA) to all Office products because the popularity of the Internet threw the company a curve.

"The spirit was willing, but the flesh was weak," said Paul Maritz, executive vice president of Microsoft's World Wide Product Group, at the Microsoft Professional Developers Conference held here.

"VBA will be out across the product line this year. I swear. I promise," Maritz said.

Because of the frenzy surrounding the Internet, Microsoft focused on delivering VB Script, an Internet scripting language that is a subset of the VBA scripting language. It is similar to Sun Microsystems, Inc.'s Java scripting language.

VBA was intended for corporate developers and power users who need to create macros that work across Microsoft software.

VBA has already been embedded in several of the applications that make up Office — Excel, Access and Project — but it has yet to appear in Word or PowerPoint.

Sources close to Microsoft said users who are waiting for Microsoft to incorporate VBA across the entire Office suite will have to sit tight until Office 97 is released at the end of this year. A Microsoft spokeswoman declined to comment.

No translation

Although Word users can edit and create macros with Word Basic, VBA provides a common syntax across all other Microsoft applications to simplify the process of linking applications, according to Chris Le Tocq, an analyst at Dataquest, Inc., a market research firm in San Jose, Calif.

"One user is eagerly anticipating a common scripting language."

"It's nice to know that one [scripting] language will eventually do everything," said J. Briscoe Stephens, the advanced scientific information systems coordinator at NASA's Marshall Space Flight Center in Huntsville, Ala., which has more than 4,000 copies of Office.

"Right now, we aren't doing much in the way of programming for Word because it's a pain in the butt. Who wants to learn to program and do something special for just one application?"

News Shorts

'net service providers wheel and deal, boost access

A wild week in the on-line world saw **America Online, Inc.** and **CompuServe, Inc.** strike agreements with a variety of players, notably **Microsoft Corp.** and **Netscape Communications Corp.** All sought to beef up access to the Internet and attract more consumers, which is good news for businesses that are trying to market goods and services electronically.

Sybase unveils OLE tool

Sybase, Inc. today will announce Object Connect for OLE, a tool designed to ease access from Windows applications to data in Sybase's SQL Server and SQL Anywhere relational database management systems. Without the product, developers must hand-code access routines, which is a time-consuming process, a spokesman said. Object Connect for OLE will cost \$2,495 per developer and \$1,495 per database accessed.



Microsoft upgrades C++

Microsoft has updated its C++ development system, adding support for the Internet and the World Wide Web. Visual

C++ 4.1 will ship early next month. It will include Microsoft Foundation Class libraries for using the Internet Information Server, custom application wizards for the Internet server application programming interface and virtual reality modeling language. The update is free to Visual C++ subscription customers; it costs \$499 for other users.

Digital to drop cluster bomb

Digital Equipment Corp. next month will unveil its long-awaited clustering technology for high-end commercial servers that run Oracle Corp. database systems. Based on Digital's Memory Channel, a high-speed interconnection that lets two servers access each other's memory, the technology will improve the reliability of two servers set up to mirror each other's data.

It's all happening at the Zoo

Hitachi Software later this month will announce ZooWorks, a tool that lets users create personal indexes of the Web. ZooWorks is a Windows 95 application that runs alongside almost any Web browser and tracks which sites a user visits. It uses a search engine from Verity, Inc. to index the uniform resource locator and full text of every document visited. A free beta version of ZooWorks will be available March 25 at <http://zoosoft.com>. The software will be generally available within eight weeks after that. It will cost \$39.95.

SAP, Microsoft in 'net pact

SAG AG is teaming up with **Microsoft** to create interfaces for funneling Internet-based business transactions directly into R/3 client/server systems. SAP will layer its R/3 applications on Microsoft's Internet infrastructure. A customer who uses Microsoft's Explorer browser software could electronically order from a Web-based electronic catalog linked to an R/3 system at the back end. Products are scheduled for year-end delivery.



HP tries to burst in on Sun

Hewlett-Packard Co. this week will announce Sunburst, a financial incentive

program aimed at luring those who use Sun Microsystems, Inc.'s Unix servers to HP 9000 boxes. The incentives include a 20% discount on HP 9000s for customers who trade in their Sun machines to HP. Users also can take any other standard HP discounts for which they qualify, the company said. The offer is good through Oct. 31.

New Newton falls to earth

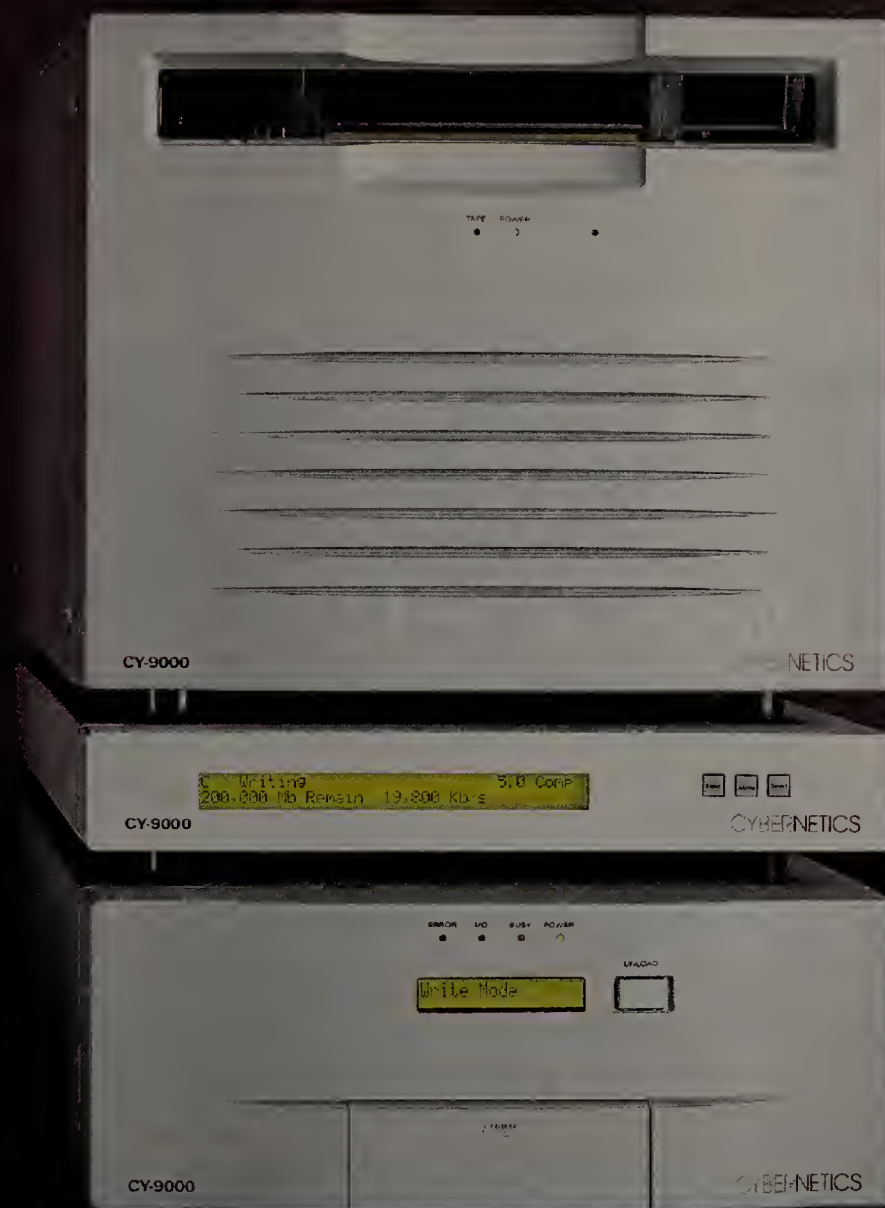
Apple Computer, Inc. unwrapped its latest Newton, the MessagePad 130. The refreshed personal digital assistant has a backlit, nonglare screen and adds an extra 512K bytes of system memory. It will ship next month. The new version will cost \$799 and run Version 2.0 of Apple's Newton OS.

IBM's Eagle finally lands

IBM won't officially introduce its long-expected Project Eagle software servers until next week. But the computer giant began to ship some of the modular servers last week, and customer announcement letters that offer details about the servers were posted on its Web page. The products available now include transaction and communications servers for OS/2 and database and Internet connection servers for OS/2 and AIX. The servers bundle applications that previously had to be bought and installed separately.

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* Sentry Market Research

** All drives, except VHS, are available with data compression

The cost of system time varies from site to site, but a recent study has put the cost of a medium sized PC LAN at **\$18,000 per hour** — and the cost of a UNIX network at **\$30,000 per hour**.* Numbers like that make it easy to understand how a backup/restore solution that can do its job faster can save you serious money.

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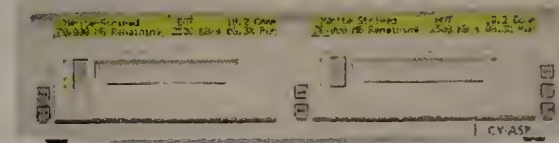
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Vendors add object power to Web

By Dan Richman

Object-oriented database management system vendors are shipping products designed to bring flat-file World Wide Web pages to life.

These products offer capabilities beyond

those available from the mainstream relational portion of the DBMS market, users and analysts said. Those include the ability to handle complex relationships among data and distributed applications.

"Today, a lot of what's on the Web is just glorified pages of text. But video and audio

are easier to store as objects," said Brad Jones, president of developer Information Sciences Group, Inc. in London, Ontario.

"Within two years, we will start seeing mainly corporate Internet applications made up of multiple pieces maintained on multiple servers in different locations, all

being used together in what appears to be a single application on the user's desktop," said Hugh Bishop, an analyst at Aberdeen Group, Inc. in Boston. "Object technology will be crucial to this development."

Versant Object Technology in Menlo Park, Calif., today will announce a Java interface to its object DBMS. It is set to ship at no charge for Solaris SPARC by April 1 and for Windows NT by May 1.

Object Design, Inc. in Burlington, Mass., will release a Java interface by early fall. Another major object DBMS vendor, Objectivity, Inc. in Mountain View, Calif., hasn't announced any plans to support Java.

Versant also will announce today Internet Adapter, a free set of extensions to the Versant object DBMS. The vendor said the extensions will make any major vendor's Web server run up to five times faster. Set to ship by June, the extensions turn the Versant object DBMS into large cache.

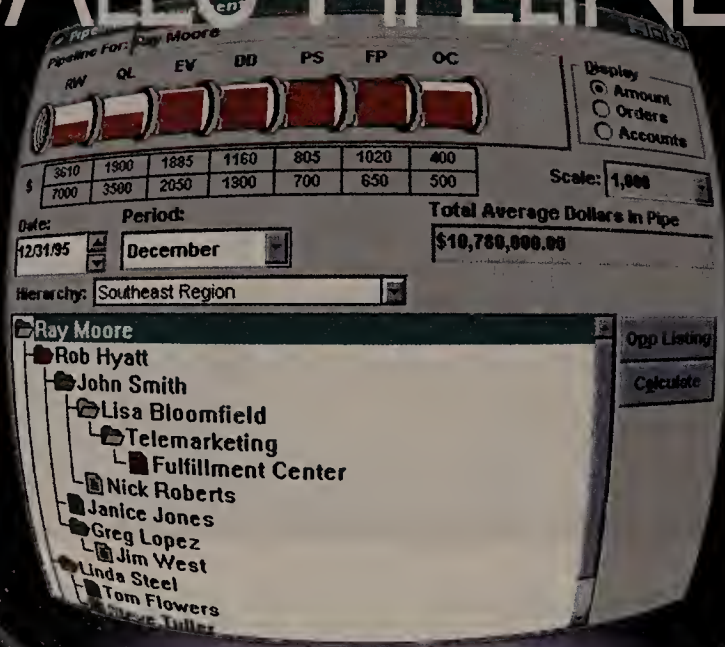
Relational DBMSs also can work as proxy servers, but they are only now gaining the ability to manipulate video, audio and other complex data. Object DBMSs have always been well-suited to do that.

Versant user Electronic Data Systems Corp. in Plano, Texas, anticipates cutting modem users' retrieval delays from several days to several minutes when the Internet Adapter is used with its Media Vault multimedia storage system, said EDS product manager Rob Dyson.

Object Design today will announce ObjectForms, which lets Internet cruisers access data in the ObjectStore object DBMS. ObjectForms also can generate Hypertext Markup Language pages from ObjectStore data without programming. Available now on Windows NT and by May 1 on Solaris SPARC, ObjectForms will cost \$3,500.

At least six commercial developers plan to release object-based Web servers to compete with Web servers from vendors such as Netscape Communications Corp., Oracle Corp. and Microsoft Corp.

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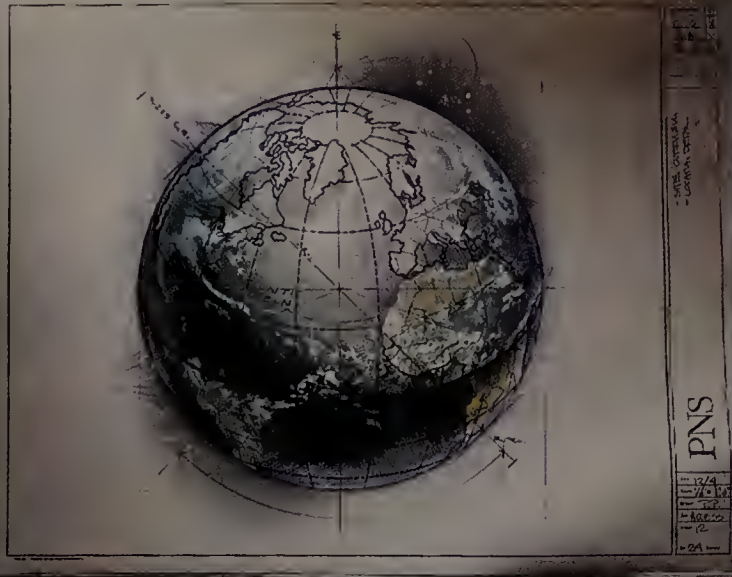
Object-ready

Object DBMS vendors contend that their products are best suited as Web or ancillary servers for the following reasons:

- Much of the data on the Web is audio or video, which object DBMSs were designed to handle — unlike relational DBMSs.
- Web pages are linked to one another in much the same way that object DBMSs already link objects to one another.
- Object DBMSs excel at handling distributed applications, pieces of which are scattered throughout a network but appear as a single, complete application to the end user. This frequently involves the use of an object request broker, technology the object DBMS vendors have helped create. — Dan Richman

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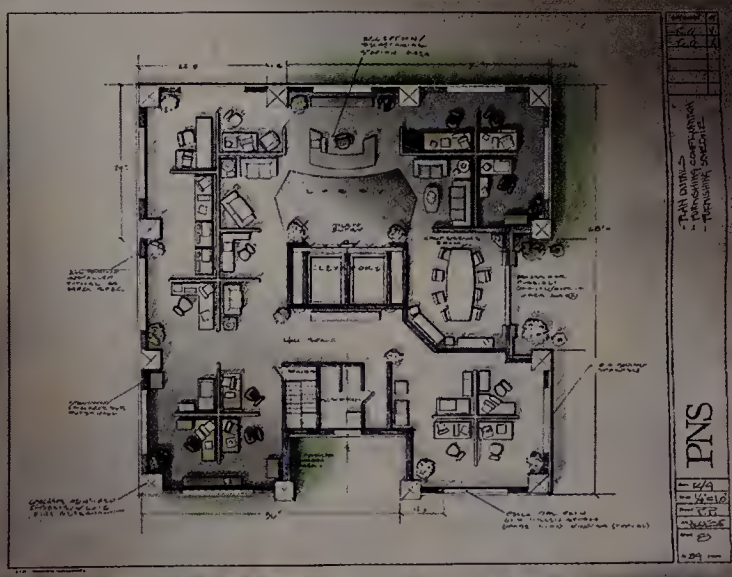
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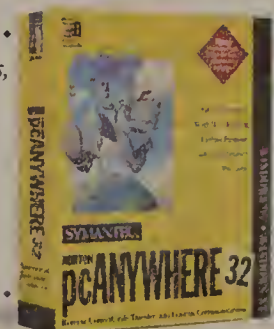
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Firms offer help for unwieldy WANs

By Patrick Dryden

Relief is on the way for managers who need better tools to document and analyze their wide-area network connections, especially those connections based on frame-relay circuits.

Three vendors last week launched independent WAN management software packages that can handle diverse internetworking gear or environments.

Frame relay can improve performance and decrease costs, but many users need help to understand how much bandwidth their applications require so they will know how much to buy.

First things first

"Most users take the 'ready, fire, aim' approach: They implement frame relay, then try to figure out the proper bandwidth and adjust accordingly," said Tim Wilson, an

analyst at Decisys, Inc., a network consultancy based in Sterling, Va.

To address this situation, Concord Communications, Inc. in Marlboro, Mass., last week expanded the WAN support of its Network Health performance reporting tool with a module that costs \$8,995 on Unix workstations.

"This tool helps me leverage the existing bandwidth within my WAN budget and plan for future capacity needs," said Patrick Brennen, manager of network



Mercer Management Consulting's Patrick Brennen: 'I needed a way to explain our frame-relay activity to senior management'

operations at Mercer Management Consulting, Inc. in New York.

Network Health now polls the WAN every five minutes, compared with three times a day under the old setup. "This helps me understand frame-relay utilization in ways that I couldn't get from the carriers," Brennen said.

Other users need help tracking WAN links for faster troubleshooting of communication or performance problems.

Cambio Networks, Inc., formerly ISICAD,

Inc., last week enhanced its Command software for documenting LAN/WAN connections.

Command 2.3 helps managers document networks from end to end, regardless of the equipment or circuits involved.

"Previously, we couldn't handle incremental speeds when we interconnected WAN equipment for American Airlines, but now we get a better picture of what facilities and speeds we are buying," said John Kurth, manager of Sabrenet systems engineering at Sabre Computer Services in Fort Worth, Texas.

StonyBrook Software, Inc. in Bohemia, N.Y., next month plans to unveil a WAN-overview capability for RouterManager/AutoBahn, its Windows-based tool for managing routers, bridges and switches.

WANServices Manager will detect, consolidate and map all connections — including frame relay, Integrated Services Digital Network and X.25 — provided by multiple vendors' gear, officials said last week.

Time out for Notes 4.0 upgrade

By Tim Ouellette and Suruchi Mohan

Lotus handed the ball to Notes users by shipping Release 4.0 last month. But many say they will wait a while before they run with it.

"We are keen on getting Notes 4.0" for its improved performance and database replication, said John Hodge, chief information officer at NAC Reinsurance Corp. in Stamford, Conn.

But Hodge said he will wait until the third quarter this year to migrate because some of the insurer's Notes databases are workflow-enabled and tied to other systems.

Features abound

Notes 4.0 is the long-anticipated upgrade to Lotus Development Corp.'s Notes groupware.

But because Lotus crammed significant new features into the release, users such as Hodge recently told *Computerworld* they plan to take things one step at a time when upgrading their Notes network.

Among the features are a completely new interface, a new mail client, improved scalability, Web integration and a new scripting language.

Michael Kran, president of the Pacific Users Group for Notes in Oakland, Calif., said he expects to see many users migrate to Release 4.0.

They oughta know

Lotus was the first user to install Notes 4.0, so who better to turn to for migration hints?

1 Make sure to plan your whole process, then **upgrade Notes servers.** This includes the Notes Name & Address Book, which acts as the command center of the Notes environment. Lotus staged the server migration from noncritical servers to main hub servers when things were running smoothly.

2 **Upgrade users' desktops.** Notes 4.0 will let administrators send the upgrade to selected users as an E-mail message, so Notes support staff members don't have to manually install disks at each user's PC.

3 **Migrate 3.x applications,** including the E-mail environment. But don't migrate gateways or third-party applications until those are certified by their vendors. — *Tim Ouellette*

But Kran noted that typically there is a lag time between a major release and its adoption due to planning considerations.

Lotus' own migration to Notes 4.0 prompted the company to create a list of recommendations (see chart). Lotus also added a Release 3.x menu finder to Notes 4.0.

The finder lets users function as if they are in Notes 3.x and will show them how to do equivalent operations in Notes 4.0.

The extent of user applications often determines how quickly a network is converted to Notes 4.0.

Safety net

"Notes is such an integral part of our business; it's scary to migrate," said Patrick Hendry, chief technology officer at Thuridion Software Engineering in Scotts Valley, Calif.

The company plans to migrate in a few months, but it will stick with the Notes 3.x databases initially because it wants to migrate without any interruption in Notes-based work processes.

"I see us still having 3.x servers in place after the move [to 4.0] so people can still develop 3.x applications until we get a handle on everything in 4.0," agreed Missy McElwee, manager of Notes development at Sedwick & James, a law firm in Memphis.

Notes 4.0 servers will be backwards-compatible with Notes 3.x servers and applications.

Quarterly upgrades are planned, including a Notes 4.1 maintenance upgrade in April, according to the company.

Notes 4.2, slated for July, will contain more new features such as native server support for Internet protocols and calendaring and scheduling abilities, company officials said.

Lotus Notes performance hit

CONTINUED FROM PAGE 1

times of roughly a minute instead of seconds. A constant trickle of complaints such as this is coming from on-line forums, but Lotus has heard them directly, too.

"The top [complaints] that I've seen are still associated with NT," said James Grigsby, product manager for Notes at Lotus in Cambridge, Mass.

Because NT Server was designed as a file server, it must be changed and set up as an application server to get better performance out of Notes, Grigsby explained.

More memory

Grigsby said upgrading to NT 3.51 from NT 3.5, among other things (see chart), may help now that Microsoft Corp. has made improvements in the new server software version for such cases.

Armando Heredia, a systems

programmer at Allendale Insurance, Inc. in Johnston, R.I., said the 30 Notes users at his company aren't having many problems running Notes off his NT 3.51 server.

But Heredia and another early user agreed that beefing up memory capacity is necessary to make Notes 4.0 run smoothly.

They said Notes 4.0 servers require at least 64M bytes to run smoothly, while Lotus recommends at least 32M bytes.

"If you give [Notes 4.0] enough memory, it will perform well, especially on the client side," said Jeff Held, a partner at Ernst & Young's Technology Services Practice in New York.

Upgrading hardware and adding memory will increase the cost of a Notes upgrade, but users who run Windows 95 or large productivity suites such as Microsoft Office have probably upgraded already, analysts said.

School of hard knocks

Some tips based on discussions with users, Lotus and Notes resellers to make Notes 4.0 more efficient:

- Upgrade the processor because Notes servers use loads of processor resources
- Don't boost memory to more than 128M bytes because it won't significantly increase performance
- Use PCI network adapter cards with Pentium machines to keep processor overhead low when managing network traffic
- Don't create views in Notes databases that must constantly recalculate themselves and hog server resources

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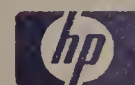
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Active X spells Java alternative

But Microsoft framework doesn't support Unix

By Kim S. Nash
SAN FRANCISCO

Java? It's just another programming language that fits into our grand plan for making object technology work over the Internet.

That was Microsoft Corp.'s message last week when it unveiled Active X at a developer conference here. It is a framework to let objects talk to one another over the Internet, regardless of whether they were built with tools from Microsoft or other vendors.

Active X is a series of application programming interfaces (API) that can activate Internet capabilities in new or existing OLE code. Plus, objects written in non-Microsoft languages — such as Netscape Communications Corp.'s JavaScript or Powersoft Corp.'s PowerBuilder — can also be included, if programmers write hooks into the Active X APIs.

Active X is essentially an envelope into which all kinds of objects can be tucked and activated in both World Wide Web and desktop applications. It will please Microsoft developers who wonder how to make their Windows and OLE products run on the Internet, said Dave Kelly, an analyst at Hurwitz Consulting Group, Inc. in Newton, Mass.

"These people were starting to look sideways at Netscape and give serious consideration to Java," Kelly said. "But Microsoft has [now] given them the on-line

bricks and mortar they were looking for."

Most of the Active X technology is due with the next major release of Microsoft's Internet Explorer browser in mid-1996. But a developer's kit was given to the show's 4,500 attendees last week.

However, Microsoft's lack of support for Unix in the Active X scenario "is their weakest link," said Ira Machefsky, an analyst at Giga Information Group in Santa Clara, Calif.

New turf


That means Unix will probably become Netscape's turf, Machefsky said. "If you want to do Internet programming that supports everything from Windows to Unix, you will probably use Java," he said, including Netscape's JavaScript language.

SpyGlass, Inc. plans to fill the gap left by Microsoft by building Unix versions of Active X pieces.

Meanwhile, several third-party software makers pledged support for Active X. They include search engine maker Fulcrum Technologies, Inc. in Ottawa and application development vendor VMark Software, Inc. in Westboro, Mass.

NCompass Corp. in Vancouver, British Columbia, announced a translation utility that lets Microsoft Office documents — Word text or Excel spreadsheets — be viewed and edited inside Netscape's Navigator Web browser. It also supports Active X interfaces.

Senior editor Stuart J. Johnston contributed to this report.

 **More on Microsoft's Internet server.** See page 64.

Objects on the 'net

Dozens of on-line locales hold information about Internet and object frameworks:

■ A detailed tutorial about object-oriented frameworks was created by the Swedish University of Karlskrona at <http://www.hk-r.se/ide/frameworks/frameworks.html>. Information about the school's Frameworks Research Group is also at the site.

■ For adding object technology to Web applications, the World Wide Web Consortium offers instructions on using objects with common gateway interface scripts. See <http://www.geom.umn.edu/docs/w3kit/w3kit.html>.

■ The Object Oriented Page offers an extensive list of links to all kinds of object resources on-line. It's at <http://galaxy.einet.net/galaxy/Engineering-and-Technology/Computer-Technology/Object-Oriented-Systems/ricardo-devis/oo.html>.

To converse with colleagues on the topic, subscribe to a mailing list. Send a message to fwlist-request@chip.cs.uiuc.edu and put "subscribe" in the subject line.



Plans for Microsoft's Internet Information Server (IIS)

● IIS 1.1 will be bundled with Windows NT 4.0, which is due to ship this quarter. New features include the ability to manage the server through a Web interface along with the current version's Windows interface.

● The goal of IIS 2.0 is to appeal to intranet users. The product will have easier-to-use management capabilities, an index and search facility and ties to Internet Studio and FrontPage, Microsoft's Web development tools. IIS 2.0, which will ship in the fourth quarter, will also be integrated with Microsoft's BackOffice.

— Kim S. Nash

Pentium Pro PC server deluge is greeted by users

By Bob Francis

A slew of Pentium Pro servers from IBM, NEC Technologies, Inc. and Advanced Logic Research, Inc. were announced last week, and close rivals Hewlett-Packard Co. and Compaq Computer Corp. are slated to follow suit next month.

Users applauded the blitz. "We've been expecting to see these systems show up, and frankly, the prices look pretty good, though we'll have to see what's actually in there," said Phil Roszak, an advisory IS consultant for Aliant Foodservice, Inc. in Phoenix.

The flurry of activity has server market leader Compaq under the gun, facing its biggest challenges from a resurgent IBM and the emerging force that is HP's PC server group [CW, March 11].

Compaq had 40% of the PC server market last year, followed by IBM with 14% and HP with 13%, according to International Data Corp. in Framingham, Mass.

Under \$20,000

Particularly aggressive pricewise was IBM's PC Server 704, announced last week at the CeBit show in Germany. It starts at \$18,995 for a single-processor model, which can be upgraded to four processors.

PC vendors began cutting server prices several weeks ago, hoping to clear out the reseller channels for the new Pentium Pro systems. "Price is a moving target in this market," noted John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H.

HP, for example, dropped prices up to 21% on its NetServer lines, and Digital Equipment Corp. in Maynard, Mass., cut prices on its Prioris PC server line by 20%. And though Compaq hasn't officially cut server prices, company officials conceded they are giving incentives to the dealer channel to clear out inventory. "We're going to do what we need to in the marketplace," said Michael Lambert, vice president for major accounts at Compaq.

Net result: Faster Web access

By Mitch Wagner

The Harvest Development Group plans to play an April Fool's Day prank on the Internet community — but in a good way. The start-up plans an April 1 release of software that will trick low-speed Internet connections into acting like they are high-speed hook-ups.

The Culver City, Calif., company plans to release Harvest Web-Cache, server software that makes copies of World Wide Web sites and stores them for easy access. The company envisions two

uses for the caching software:

● Companies with low-speed access to the Internet, such as 56K bit/sec. phone lines, can store copies of their Web sites at their Internet service provider rather than locally.

That puts the site close to a high-speed connection, which improves access times. It is like a company with a big store on a small, country road opening a branch near a major highway.

● Workgroups with low-speed access to the Internet can use the software as a "proxy server," which stores copies of oft-

accessed sites on a LAN server so more people can get at the sites faster.

Eric Goldreyer, president of Inns & Outs, Inc., an Austin, Texas, company that publishes an Internet guide to bed-and-breakfast inns, said caching software performs a valuable service. "Anything that frees up bandwidth is ideal," he said.

Caching is a popular feature of Internet servers, which can be configured to store copies of Web sites locally and run as "proxy servers."

But WebCache supports the greatest amount of Internet func-

tionality, said Carson Gaspar, a Unix developer at a major financial services company in New York.

The firm uses WebCache to give employees access to the Internet. Other caching software

doesn't support features like "if-modified-since" queries, which allow software browsers to query a server to see if a page has been updated since the last visit.

WebCache is also significantly faster than other caching software, Gaspar said. "Really, there aren't that many options out there," he said. "Most of the other ones are missing support for some protocols or they're performance pigs."

WebCache runs on common Unix platforms. Its price ranges from \$1,500 to \$5,000, depending on usage.

Harvest Development Group


Culver City, Calif.

<http://www.netcache.com>

Product: WebCache

Starting price: \$1,500

Caching software for storing copies of Web sites closer to the user for faster access

 **Major software developers jockey for font pre-eminence on the 'net.** See page 67.

Low-cost, switch-based intranet package on tap

By Bob Wallace

Users at midsize and small sites soon will have an affordable single-package option for building high-speed intranets based on Ethernet switching.

Xedia Corp. in Wilmington, Mass., plans to offer software that will enable its Ethernet and Fast Ethernet switches to flexibly manage IP addresses and security firewalls.

IP/Assist software costs \$195. Xedia switches — one of which is resold by inter-networking power Bay Networks, Inc. — cost \$400 to \$700 per port.

Those two features are supported only on expensive central site switches. For example, Agile Networks, Inc.'s ATMizer costs \$1,500 per port, but it also supports more protocols and offers more virtual LAN functionality.

Equipment needed

A user who wanted those features at a smaller site would need a \$1,500 piece of network operating system software and \$1,000 to \$2,000 for a router with firewall capabilities.

"This is the first time these key intranet-working capabilities have been built in to a low-cost workgroup switch," said Skip MacAskill, a senior research analyst at Gartner Group, Inc. in Stamford, Conn. "The software enables the switch to do more than just push packets."

One Xedia customer said he likes the functionality of IP/Assist and is considering trying it out.

"We've given the Xedia switch rave reviews and are looking at the software because we like the functionality and the very low price," said David Brown, a network manager at the Marriott at Copley Place Hotel in Boston. "It's much less expensive than going with a larger switch, which we don't need."

The IP/Assist software supports Dynamic Host Control Protocol (DHCP), a key utility that is supported as an add-on for stand-alone servers. The software simplifies the management of IP user addresses, which frees up staff time.

Before DHCP's availability, network administrators manually assigned a permanent IP address to every user. That was time-consuming and unwieldy.

Now, administrators can deploy DHCP to manage a pool of available IP addresses and automatically lease these addresses to end users as the addresses are needed. Once the wide-area network transmission is complete, DHCP automatically frees up the TCP/IP address for the next user.

The other key feature IP/Assist supports is firewall security that uses filtering. This means network administrators can restrict user access to computing resources.

IP/Assist, which will be continually enhanced during the next six to 12 months, initially will support rudimentary virtual LAN capabilities. Virtual LANs are logical rather than physical networks.

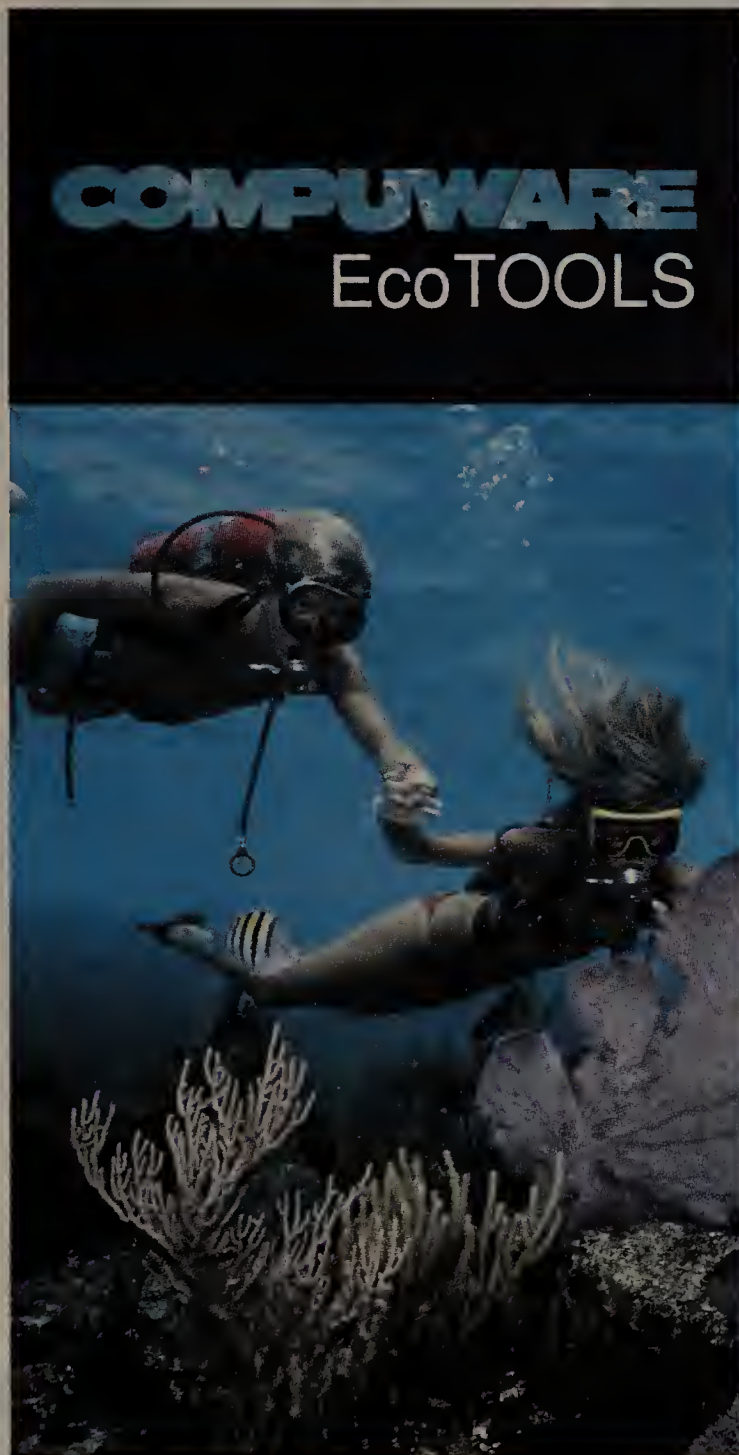
The Xedia software supports virtual LANs where membership depends on what

port on the switch the user is connected to. Though its switches cost more per port, Agile's technology offers far more advanced virtual LAN technology.

IP/Assist only supports IP routing, but Xedia plans to add support for more protocols in the next six to 12 months. By com-

parison, the ATMizer supports Novell, Inc.'s IPX and Apple Computer, Inc.'s AppleTalk.

But the Xedia switches were designed for small and midsize sites, where users don't need full-blown systems chock-full of advanced features.



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Agents of change?

Insurance IS pros straddle bureaucracy, competitive demands

By Thomas Hoffman
NEW ORLEANS

Beneath multiple layers of bureaucracy and business processes circa 1970 beats the fearful heart of today's insurance industry.

And for scores of information systems managers gathered here last week at the Life Office Management Association's informa-

tion management conference, those palpitations spell change.

Their companies face intense competition from mutual fund companies and other financial services players for coveted baby-boomer investments. But the idea of change — and taking high-tech risks such as object technology — remains about as popular

as double indemnity.

"There aren't too many [insurance] companies that are willing to spend the kind of money necessary to do objects," said one attendee, an IS manager at a Midwestern insurer who requested

anonymity.

Most insurers are just beginning to ramp up on distributed,

LOMA

Biting the bullet

Insurance companies are facing the looming threat of the year 2000 date change with a pained expression on their somber faces.

Consider the story of Chubb LifeAmerica, which had the foresight to assign one of its analysts to do an impact analysis in mid-1994.

The analyst returned to his bosses with the news that it would take 256,000 person-hours to work through the firm's 20,000 programs. That would cost Chubb roughly \$13 million. So the analyst was fired.

"We saw our careers flashing before our eyes,"

said Warren L. Reynolds, senior vice president of information technology at Chubb. "We knew senior management wouldn't buy in to this."

But as the clock ticked away toward 2000 — when experts say millions of software systems could crash when computers interpret two-digit date fields as Jan. 1, 1900 — Chubb hired Cap Gemini America to do another impact assessment.

The New York-based consultancy not only supported the ex-analyst's conclusions, but it also found that some of Chubb's newer systems

contained the most significant date-sensitive problems, said Sandra M. MacIntyre, vice president of IS at Chubb.

Chubb is using Cap Gemini software to calculate and scan every line of code on its systems. The software figures out which applications with two-digit date fields will incur problems and whether these systems will affect other applications.

This week, Chubb begins a pilot project of 100 to 200 programs that it will use as a benchmark for its other efforts, MacIntyre said. The pilot should be done by year's end, and the remainder of the firm's code should be revamped through 1998, Reynolds said.

And what became of the Chubb analyst who was fired? "He was recently hired back at higher pay," MacIntyre admitted. — Thomas Hoffman



Chubb's Sandra M. MacIntyre says some of Chubb's newer systems had the most significant date-sensitive problems



USAA Life's Edwin L. Rosane says a client/server system will 'allow us to build products quickly'

graphical user interface (GUI)-based systems to become more responsive to customer needs. Even those efforts are at risk, as legacy-system-bound insurance shops will have to shift many of their resources to meet year 2000 date-change compliance (see box).

Rather than recasting their legacy systems with object technologies, most have followed what many attendees referred to as the "safer" Smalltalk and C++ routes.

One of the industry's early object pioneers, London Life Insurance Co. in London, Ontario, certainly has suffered its scrapes and bruises.

In 1991, the company began using Trinzic Corp.'s KBMS tool to "objectize" its IBM MVS, Digital Equipment Corp. VAX/VMS and PC-based Windows applications.

Abust

But after two years of development and nearly \$500,000, KBMS turned out to be a bust. The development software was rigid, it chewed up too many PC resources, and the vendor didn't support it very well, said Sandro Palleschi, a senior consultant at London Life.

London Life has since shifted to Microsoft Corp.'s Visual Basic and Access object development kits to create GUIs and object repositories between its three-tiered architecture.

The payoff has been impressive because of object technology's slant toward method and object

reuse. London Life was able to tackle 35,000-plus business "functions" last year, some 13,000 more than it had anticipated.

In addition, the insurer blew away its \$550 cost-per-function target, coming in at \$337 per function last year, according to Palleschi.

The view from above

But the top brass at other insurers are realizing that their organizations need to accelerate use of client/server technologies to remain competitive.

For example, Sun Life of Canada recently beat out eight other competitors for a \$250 million-per-year contract with the Canadian government to insure up to 1 million civil servants. Sun Life was told that its

solid IS infrastructure played a significant role in its selection, said John R. Gardner, president of the Toronto-based firm.

In the U.S., USAA Life Insurance Co. is about to roll out a set of 350 IBM DB2, client/server-based health, annuities and life (HAL) systems.

The HAL modules, which will go live starting April 1, are expected to decrease systems training time for end users by 75% and improve the productivity of processing large transaction volumes by 50%.

"This [policy and] administration system will allow us to build [insurance] products quickly," said Edwin L. Rosane, president and chief executive officer of the San Antonio-based firm.

Pentium Pros

CONTINUED FROM PAGE 1

ed with Windows NT.

"We are seriously considering doing this in the future. We are seeing a lot of momentum behind Windows NT in the desktop space," said Boris Elisman, worldwide marketing manager at Hewlett-Packard Co. in Palo Alto, Calif.

Others expected to take a similar tack are Compaq Computer Corp., IBM and NEC Corp.

A clear-cut product demarcation between Windows platforms will also allow vendors to tap the growing corporate interest in Windows NT with specifically targeted, relatively low-cost Pentium Pro systems that are optimized to

run the 32-bit operating system, analysts said.

"NT on Pentium Pro is a killer combination" that vendors will leverage in the corporate sector as prices come down, said Martin Reynolds, an analyst at Dataquest, Inc. in San Jose, Calif.

"Right now, Pentium Pro systems are still far too expensive. But we will consider them as soon as prices drop low enough to make sense to us," said Kevin Danahy, manager of workgroup application development at Millipore, Inc. in Bedford, Mass. The company plans to deploy Windows NT-based Pentium Pro systems in "high-end application areas," according to Danahy.

Already, a number of vendors, including Compaq, IBM and HP, offer Pentium Pro-based Windows NT systems, which they

have sold mainly in niche market applications areas such as computer-aided design and manufacturing and engineering.

Users can get a fully configured, 166-MHz Pentium-based system for about \$3,500. A 200-MHz Pentium Pro-based Windows NT machine costs more than \$5,100. By the end of the year, Pentium Pro prices will have fallen low enough for vendors to sell the same system for about \$3,800 to \$4,000, analysts said.

For some users, the impending price cuts will make upgrade decisions easier. "We generally always upgrade to the latest technology. With this kind of a price point, the leap will not be so great," said John Williams, MIS manager at Priority Pharmacy, in San Diego.

Senior editor Stuart J. Johnston contributed to this report.

Different strokes

PC vendors will split their commercial PCs into two groups:

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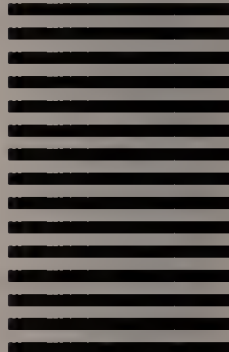
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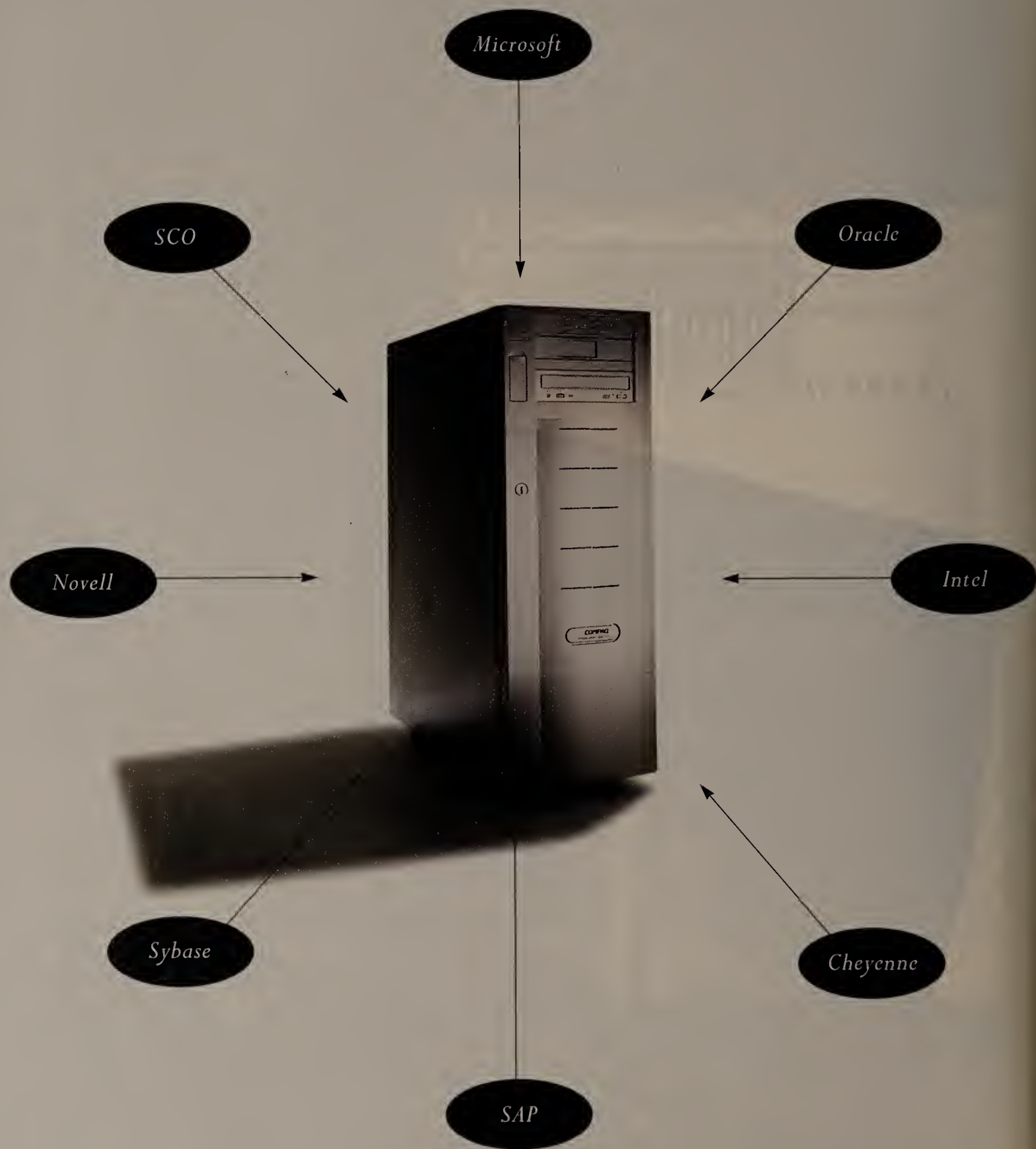


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COMPAQ

Has It Changed Your Life Yet?

HP tries to jump-start Exemplar

PA-8000 will juice up parallel processor box threefold

By Craig Stedman

Hewlett-Packard Co.'s salvage operation at the former Convex Computer Corp. starts in earnest this week with the introduction

of a speedier version of Convex's Exemplar technical parallel processor.

But the real push will come in the second half of this year, when HP plans to ship a new Exemplar system based on its 64-bit

PA-8000 microprocessor. Analysts said that should finally give Exemplar enough power to make it a competitive machine for HP, which bought the rapidly fading Convex in December and turned it into a development center (see chart).

The PA-8000 version of Exemplar is ex-

pected to be called the SPP2000. Sources said peak performance should exceed 700 million floating-point operations per second (MFLOPS) per processor, compared with about 235 MFLOPS on current models based on HP's PA-7200 chip.

HP lags behind rivals such as Silicon Graphics, Inc. and Digital Equipment Corp. on floating-point performance now. But the PA-8000 would move Exemplar to the upper echelon, according to industry sources.

Exemplar "has been kind of a second-tier player" since it shipped in 1994, said Jeff Liebl, an analyst at Smaby Group, Inc. in Minneapolis. The product's relatively weak performance and Convex's financial problems scared software vendors away from reworking their code to take advantage of the product's parallel capabilities, he said.

The Exemplar SPP1600 being announced this week quadruples the amount of cache memory on each processor and adds a Peripheral Component Interconnect bus to handle I/O operations. HP said that should improve application performance on the system by up to 60%.

But Convex already gave a midlife kick to the current Exemplar design last year,

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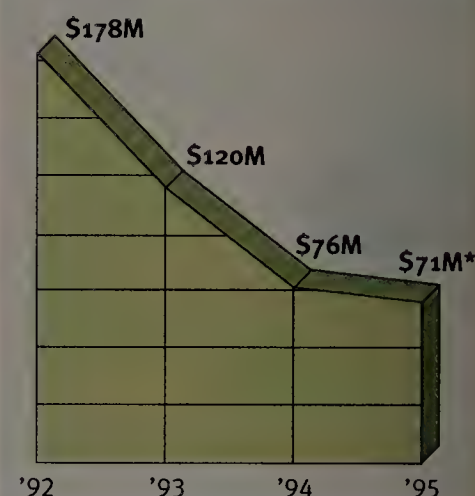
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Free falling

Convex's annual product revenue



*Estimated

Source: Smaby Group, Inc., Minneapolis

"and this seems like another one," Liebl said. "I think a lot of customers are going to wait on the sidelines [for] the PA-8000."

The University of Kentucky in Lexington is one Exemplar user that will pass on the SPP1600 unless the university can get grant money to pay for an upgrade, said Rick Chlopan, director of technical services at the school. The university is hitting the performance wall with its 32-processor Exemplar, but its budget won't allow for another purchase until next year, according to Chlopan.


Paul Bemis, marketing manager for technical servers at HP's Workstation Systems division in Chelmsford, Mass., confirmed that the 64-bit hardware is scheduled to appear in the second half of this year. He declined to comment on the anticipated throughput.

Exemplar uses a global shared memory to make the system look like a symmetric multiprocessor to programmers. It runs a microkernel-based operating system with a layered HP-UX personality that provides compatibility with applications written for HP's mainstream Unix.

Is there ever a

good time

to upgrade your operating system?

A young boy is sitting in a field of tall grass, looking towards the camera. He is wearing a dark shirt and light-colored shorts. In the background, there is a wooden cart with two wheels and a long handle. The scene is set in a grassy field under a clear sky.

Finding the perfect time to migrate
is like finding the perfect time to mow the lawn.
However, finding the perfect reason is easy: value.
Upgrades have value insofar as they deliver dramatic improvements,
improvements that outweigh the cost of deployment.
With the Microsoft Windows 95 operating system,
that value is demonstrable. And in what follows, we'll show you how it,
and the 32-bit applications that run on it, can reduce your support burden,
increase your control over the desktop,
and improve the productivity of end users.
In short, we'll address the issues that tend to forestall serious evaluation.
We'll even go so far as to suggest that waiting has costs of its own.

Support for IS.

Support for system administrators begins with support for end users. With its simplified interface, Windows 95 allows users to work far more independently than in the past. Simply put, the greater their autonomy, the less time you spend answering obvious questions.

But it's not just the interface that's improved; the whole system is more reliable. Thanks to the 32-bit protect-mode components of Windows 95, users can run

multiple applications at the same time, without running out of system resources or freezing-up their PCs. The same is true even if a network server goes down. And, with 32-bit applications now able to run in their own memory space, the likelihood of one app crashing another is almost nil.

What's the upshot of all this? Well, it won't exactly turn you into the Maytag repairman, but it can cut helpdesk calls by 7 to 14% a year.¹

Still, in designing a new OS, we realized that to make things easy for the end-user at the expense of the IS department would be self-defeating. And to that end, Windows 95 offers a variety of powerful tools to help you better manage your network and your time.

Built into Windows 95 are a number of tools to simplify administration. 32-bit versions of popular network clients,

like Novell® NetWare® are included, as is support for standard transport protocols like TCP/IP and device standards. Plug and Play support detects hardware devices as they are added to the system, which makes installation a snap. And, with Server-based Setup and Batch Setup tools, it's now possible to install and configure Windows 95 on multiple desktops from a server. Automatically.

Once you're wired, you can monitor performance and troubleshoot problems from a central location.

More support: more control.

System Policies in Windows 95 allow you to specify system settings and restrict network access and security privileges from a central location. So you can lock down desktop configurations whenever you see fit. And with User Profiles, individual users' desktop configurations are available wherever they log on to the network. This lets multiple users share one computer and "roving" users log on to other networked computers, while maintaining their own personal settings.

Again, with Windows 95, all of this can be done from a central location, reducing the number of on-site visits by 30 to 50%.² At last, you'll be able to focus on the big-picture stuff. So the next time someone asks you what's what with this Internet thing, you can say, *I have a plan.*

Productivity from the word *Start*.

The improved interface in Windows 95 makes nearly everything easier for novice and advanced users alike. Its Start button and task bar make applications more accessible. Long filenames make identifying files easier. Better tools such as Wizards and improved Help make learning features easy. Its right mouse button puts common commands a click away. And now that the separate Program Manager, File Manager, and Print Manager are gone, there are fewer concepts to learn. This makes for able, autonomous, and, dare we say, happy end users. People who require less training and support. Who, in short, can turn the desktop into the most tangible technology investment your company can make.

But Windows 95 isn't just easier, it's more responsive. Basic operations, like printing or accessing a file on a PC or over a network, are faster. And with its 32-bit multitasking capability, users can conduct file searches, online communications, or other tasks all while, say, editing a document. In fact, studies show that once users are familiar with the new OS, they're able to accomplish many tasks in about half the time it took under Windows 3.1.³

Of course, no one spends their entire day tooling around in their operating system. People have work to do. With that



Today you can turn the desktop into the most tangible technology investment your company can make.



1. Technology Business Research, Inc., a market research firm, collected and analyzed the helpdesk logs of 10 Fortune 100 companies in order to project the impact of Windows 95 on call avoidance, problem resolution, and on-site call reduction. The logs represented 100,000 PC users and 1.5 million helpdesk calls per year. 2. Technology Business Research, Inc. 3. To quantify the learning curve from Windows 3.1 to Windows 95, and evaluate user productivity on Windows 95, Usability Sciences Corporation, an independent usability testing organization, had 75 beginner, intermediate, and advanced Windows 3.1 users complete tasks with both operating systems. They found that users were 91% more productive with Windows 95, and 94% more accurate. Tasks performed included: finding and opening files and programs, copying and moving files, and switching between active programs. 4. The MASIE Center, a recognized software training center and think-tank found that only one hour of briefing and

The prevailing wisdom and why, this time, you should ignore it.

Common sense tells you to hold off on making the move to Windows 95, to wait until someone else finds the bugs. Well, someone else already has. With the largest beta program in history, Windows 95 was installed on more than a million desktops worldwide. Now, just six months into its commercial release, thousands of organizations are in pilot and rollout. And to keep them current, we've put together an online Service Pack with the latest drivers and other new components. In short, the dreaded "1.0 version" has already come and gone.

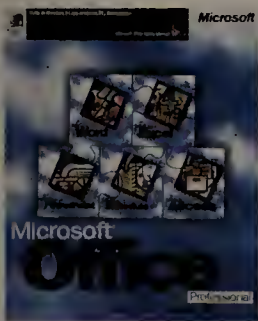
in mind, no evaluation of Windows 95 would be complete without simultaneously evaluating some of the 32-bit applications designed for it, such as Microsoft Office for Windows 95.

Now users can focus on their work instead of their software.

Office 95 is more than just fresh features on top of Office 4.x. It's a deeply integrated suite of applications. Integrated, both with the operating system and with each other. Because users can leverage their knowledge of one application throughout the entire suite, they need only three hours of training to be effective in all of them.⁴ Needless to say, this can dramatically reduce training costs.

But what about support? While it's one thing to get PC users up and running, it's quite another to teach them all the skills they'll ever need. And of course, you can't; users simply aren't interested. (Remember? They've got work to do.) Knowing this has made all the difference in designing Office 95. It's resulted in advances such as the Answer Wizard, which lets users ask the computer plain English questions like, *How do I print sideways?*, and then shows them exactly how to do it. As a result, you can expect a 48% reduction in Office-related help calls.⁵

With Office 95, users are not only able to work on their own, they're able to accomplish more things faster. Labor-saving features such as updated AutoFormat and Spell-It in Word, and enhanced AutoComplete in Microsoft Excel, not only render everyday tasks automatically, they do so accurately. According to Kelly Services, the folks who train and supply corporations with over 325,000 office professionals each year, users complete their tasks 37% faster with Office 95. And they're 36% more accurate in doing so.⁶ Not a bad day at the office.



Why sooner is better than later.

If, as the headline says, there's never a good time to migrate, why make the move now? Why? Because deployment takes time.

Product reviews, network configurations, lab tests, pilot programs, rollout — it takes time. And if the goal is to decide *Is it worth it?* and you continue to put off serious evaluation, it'll be that much longer before you begin to realize the productivity gains and cost savings that Windows 95 and Office 95 have to offer.

But let's assume you upgraded today. How long would it take to recoup your migration costs? According to a leading consulting firm, Office 95 will pay for itself in 10 months in medium-sized companies, and 12 months in large organizations.⁷ Factor in the increase in end user productivity, and those numbers fall by nearly half.

No question about it, the move to 32-bits is a big one. But as part of the larger evolution in chip architecture, hardware platforms, and application support, it's not one that you or Microsoft is making alone. Won't you join us?

How to start.

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two hours of self-discovery were required to migrate Office 4.3 users to Office 95. 5. Technology Business Research, Inc. 6. Kelly Services, Inc. conducted a controlled usability study of 35 employees who regularly use Office 4.3. Participants were measured for speed and accuracy in completing commonly performed tasks. 7. International Data Corporation modeled the expected returns on investment of Office 95 for large companies (1,000+ PCs) and for small-to-medium companies (100 PCs). On a cost-to-use basis, large companies will see their investment paid for in 12 months, small companies in 10. On a value-to-use basis, those figures drop substantially: 4.8 months for large companies, 5.3 months for small. © 1996 Microsoft Corporation. All rights reserved. Microsoft, Windows and Win32 are registered trademarks and Windows NT, the Windows Start logo, and *Where do you want to go today?* are trademarks of Microsoft. Novell and NetWare are registered trademarks of Novell, Inc.

NPI attacks Fast Ethernet market

By Bob Wallace

It's a classic case of David vs. Goliath. And the winner is the corporate user.

That was the case last week when Network Peripherals, Inc. (NPI) entered the Fast Ethernet market with what analysts are calling the broadest line of products

that support 100M bit/sec. Ethernet technology to date.

"There's no doubt that NPI offers every type of Fast Ethernet product a user could want and at prices that are extremely competitive," said Skip MacAskill, a senior research analyst at Gartner Group, Inc. in Stamford, Conn.

The Milpitas, Calif., upstart is taking on established giants such as Intel Corp., Bay Networks, Inc. and Cisco Systems, Inc. These companies have Fast Ethernet products but offer fewer choices. The NPI boxes, in some cases, are several hundred dollars cheaper than those of the competitors and use the same technology.

Fast Ethernet products can help information systems managers clear network traffic jams by providing switched 100M bit/sec. bandwidth to break 10M bit/sec. bottlenecks.

To deploy Fast Ethernet, users need to swap existing adapter cards and hubs for Fast Ethernet models. Those cost roughly 1½ times more but provide 10 times the bandwidth. The bandwidth boost can ease congestion around heavily used servers. It also can help link lower-speed Ethernet hubs, although the pipes can be directed to the desktop for the most data-intensive applications.

Ports aplenty

"We had all our users trying to access [computer-aided design] applications on a server through regular Ethernet hubs, but the response time was slow, and there were lots of data collisions on the pipes," said Jim Musso, a systems administrator at CDI CAD Services in Tempe, Ariz. "But once we added the hub with the Fast Ethernet [up-link], those problems went away."

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*Projected

Source: Dell'Oro Group, Menlo Park, Calif.

CDI has plugged six 16-port Ethernet hubs in to NPI's switch and connected its server to the 100M bit/sec. port in the back of the unit.

NPI has detailed plans for 11 Fast Ethernet hubs and a \$165 Peripheral Component Interconnect adapter card. The company offers three switches with one, five or six Ethernet ports. Each switch has one Fast Ethernet port. The switches cost \$695, \$1,595 and \$2,995, respectively.

On the high end, NPI announced two hubs: one with eight Fast Ethernet ports, which costs \$1,195, and one with 12 Fast Ethernet ports, which costs \$8,995.

The vendor is shipping three of the hubs, and the rest are due by June.

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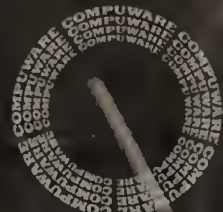
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*A few thoughts about motivation and UNIFACE
application-building strongware from Jim Rutherford,
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UNIFACE APPLICATION DEVELOPMENT STRONGWARE

Promises and perils on the information highway

By Gary H. Anthes
WASHINGTON

The information highway may be described by some as the information "hypeway," but a committee of the National Research Council (NRC) last week said the Internet eventually will outstrip the most bullish growth projections.

Even so, in a recent report, "The Unpredictable Certainty: Information Infrastructure Through 2000," the NRC cautioned that the National Information Infrastructure (NII) — which includes the Internet and other communications media such as cable TV — will evolve more slowly than many people expect, for several rea-

sons. They include the following:

- Insufficient investment in the communications infrastructure.
- Users who aren't aggressively developing the applications they need.
- The growing difficulty for the standard-setting Internet Engineering Task Force (IETF) to represent users who are constantly growing more diverse.

Growth industry

There are 9.5 million registered hosts attached to the Internet, and that is increasing at an annual rate of 85%. A larger number of hosts are attached but hidden behind firewalls. There are 76,000 World Wide Web servers, and they are increasing at an annual rate of 2,400%.

Source: Mark Lottor, Network Wizards, Menlo Park, Calif.

The NRC report said the slow pace of Internet development stems from a number of causes, including service providers' reluctance to build capacity for which there is no guaranteed demand and a "disconnect" between users and service providers.

This is partly due to users such as man-

ufacturers, health care organizations and educators, which have done a poor job of articulating their needs, the report said.

Other users are concerned about performance and reliability issues, the report said.

"There are some [users] who think someone is going to design the applications for the NII [from the top down] and just put it out there," said Charles Brownstein, executive director of the Cross-Industry Working Team in Reston, Va., a coalition of firms developing a technical vision for the NII.

Do it yourself

Brownstein said users should work on their own applications, just as many companies are setting up World Wide Web servers. "Don't think of the NII as products, think of it as infrastructure" to build on, he advised.

Meanwhile, the NRC report said the Internet can't continue to flourish without very substantial investments in its physical com-

Info highway potholes

Concerns about the future of the NII include the following:

The Internet cannot continue to flourish without substantial investments in the physical communications infrastructure.

The Internet standards development process is under stress, with developers removed from an increasingly diverse body of users.

Users in big application areas such as manufacturing, health care and education believe technology is driven more by "vendor push" than by "user pull."

Users are worried about technology issues such as capacity, interoperability, ease of use and security.

Source: Computer Science and Telecommunications Board, National Research Council, Washington

munications infrastructure. "The greatest uncertainty is how much [will be invested] in the medium term, the five- to seven-year horizon we looked at," said David D. Clark, a member of the NRC committee.

Users are clearly concerned. "We are doubling the [volume of data] packets every three to four months, and we are on the ragged edge of control," said Michael Roberts, networking vice president at Educom in Washington, an association of information systems specialists at colleges and universities.

But Roberts said companies are

creating their own Internet capacity by building corporate intranets. "It's these intranets that are saving us from some degree of meltdown," he said.

The NRC report raised a red flag but made no recommendations about the Internet standards process. The process is becoming "balky" and "balkanized," according to the council.

"The IETF is cumbersome and slow, but it's still far faster than any standards process devised by the telecommunication community," Brownstein said. "It can work as long as it remains independent."

Stratus targets 'net commerce with entry-level Unix server

Fail-safe Continuum series keeps vendor in play

By Michael Goldberg

Stratus Computer, Inc. is continuing a drive it started last year to move into new market areas, including the Internet, by adding an entry-level Unix server to its fail-safe Continuum family.

The Continuum 400, with prices starting at \$65,700, becomes the low end of a product line that includes the midrange Continuum 600 and the higher-end Continuum 1200 series of symmetrical multiprocessing (SMP) servers.

And following other vendors into the Internet pool, Stratus will let users outfit the Unix-based Continuum 400 with Internet

server software from Open Market, Inc. for electronic commerce applications. Stratus doesn't plan to make the Internet software available for its proprietary VOS operating system, according to CEO Gary Haroian.

Stratus announced last fall that it was getting into the LAN server business with a system called Radio based on Intel Corp. chips.

Market melee

These are mandatory moves, analysts said. The Marlboro, Mass., company faces competition from traditional rivals such as Tandem Computers, Inc. that provide hardware fault tolerance. Stratus also must

match up against Unix server vendors that promise various levels of crash-resistant systems.

"They have had tremendous pricing pressure for a long time," said analyst Jim Johnson, chairman of The Standish Group International, Inc. in Dennis, Mass. Johnson said Stratus was in danger of becoming a "totally uncompetitive" niche player.

Rolling out the Continuum 400 series should help the company, especially with Stratus' traditional customer base of telecommunications and financial firms, said Jay Bretzmann, an analyst at International Data Corp. in Framingham, Mass.

The Continuum 400 servers will be available in June at \$65,700 for a uniprocessor model with full hardware backup. They will also come in a two-processor SMP version.

The Continuum machines use Hewlett-Packard Co.'s PA-RISC 7100 microprocessors and run on Stratus' FTX version of the Unix operating system. Stratus plans to sell versions of these servers that run on its VOS operating system in early 1997, company officials said.

At Herzog Heine Geduld, Inc., a stock trading firm in Jersey City, N.J., that has long used Stratus products, information systems manager Simon Sarofsky said Stra-

tus "is putting out a couple of nice new products": the new low-end Continuum models and the Radio LAN server. But "they have to bring their price points down and still maintain reliability," he added.

And analysts said Stratus faces a big challenge if it wants to grow beyond its base. As more business applications take on the "mission-critical" label, companies looking

at hardware purchasing decisions often choose less costly Unix servers from HP or Sun Microsystems, Inc.

Staying competitive

Last September, Stratus laid off 500 workers, or 18% of its payroll, after citing declining profit margins and disappointing sales.

In position

Haroian said he is confident Stratus can build revenue by marketing the new Continuum and the Radio LAN servers to companies that build applications around the Internet and client/server systems.

"We're in very good shape

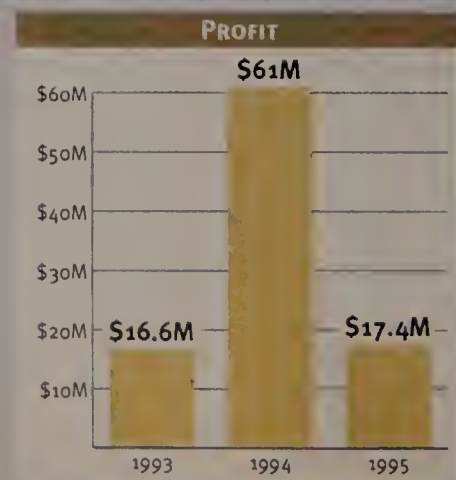
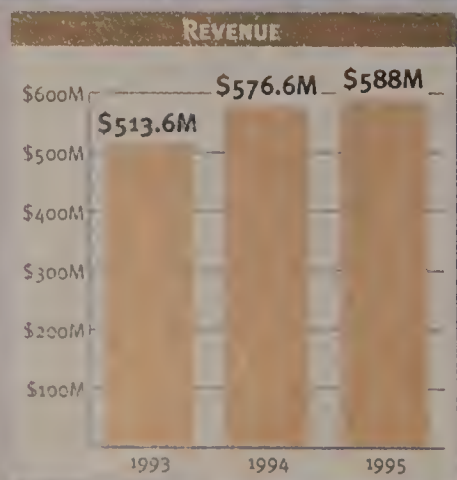
to capture an emerging growth spurt that's occurring in the marketplace, as users try to move mission-critical and business-critical applications into a distributed computing environment," Haroian said.

"There's going to be a lot of growth in electronic commerce kinds of applications, and this is an area where Stratus has a lot of credibility," he added.



Parallel systems are getting a shared-memory look. See page 39.

Stratus Computer



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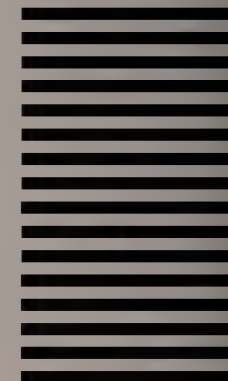
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1. What now popular industry term was coined by Jaron Lanier?
2. What Broadway show was the first to use computer controlled lighting?
3. What prominent Soviet computer designer was hired by Sun Microsystems in the early 1990's?
4. What well-known computer personality purchased the Leonardo DaVinci *Hammer Codex* at auction in 1994?
5. What company created the computer-aided special effects of the 1994 movie *The Mask*?

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Computer Industry

AT&T spin-off files largest IPO ever

By Randy Weston

Lucent Technologies, Inc. filed the largest initial public offering (IPO) in U.S. history last week, as the AT&T Corp. spin-off laid the groundwork for a well-heeled assault on the networking hardware and software markets.

Lucent's offering of 111 million shares is expected to bring in more than \$3.1 billion in fresh cash, which the company will use to expand its lines of business and enter new ones, such as wireless products and Asynchronous Transfer Mode (ATM) switches.

AT&T is spinning off Lucent because the parent company realized that potential customers of telecommunications equipment,

such as other long-distance carriers and regional Bell operating companies, were reluctant to buy from a direct competitor, said Allan Sulkin, an analyst at TEQConsult Group in Hackensack, N.J.

Telecommunications equipment

Becoming an independent company creates "great potential for them to get into high-growth markets," Sulkin said.

On Lucent's first day as a separate entity, it will be a \$20 billion giant that is No. 1 in public networking equipment and No. 2, behind Siemens AG in Munich, Germany, in private networking gear, according to Sulkin.

In filings with the Securities and Exchange Commission, the company said it intends to focus on developing equipment for wire-

less networking and systems capable of handling voice, data and video communications, while continuing its focus on networking software.

Motivated researchers

Under terms of the AT&T breakup, Lucent retains the vaunted Bell Laboratories research organization, which could bode well for the future. "Now all those guys at Bell Labs have a financial incentive to come up with new products and not to just research products," said industry analyst Howard Hecht, a principal at Decisys, Inc. in Sterling, Va.

"We have a lot [of ATM switches] out there but not very good ones. If [Lucent] can take its network software technology and graft it on to a high-performance ATM — boom! They're in."

Going public

These are the five largest IPOs in U.S. history:

COMPANY	VALUE
Lucent Technologies	\$3.1B
Allstate Insurance	\$2.1B
Conrail	\$1.6B
Pacific Telesis	\$1.4B
Henley Group	\$1.3B

Source: Securities Data Corp., Newark, N.J.

Lucent still faces hurdles in its race against the likes of Siemens, Nortel, Inc., Alcatel Alsthom, Ericsson Telephone Co. and Motorola, Inc.

Lucent's leaders "will have to choose their battles carefully,"

Hecht said. "They seem to have been able to limit their purview. People were concerned [that] they would try to be the equipment supplier for everything. But they seem to be willing to take the PBX business and turn it around."

David Regan, voice communications specialist at Detroit-based Michigan Consolidated Gas Co., isn't expecting many changes from AT&T after the split, but he said he will keep an eye on what Lucent comes up with on its own. "We're not going to really see a big difference," he said. "They're standing behind their products, but they have a long way to go to penetrate the market. They need to be patient."

Hecht and Sulkin agreed that Lucent's biggest challenge may be boosting its weak marketing efforts.

D&B Software reassures users

No buyer, but products on track

By Julia King

As Paul Newman found out in the movie *Cool Hand Luke*, a failure to communicate can be fatal.

That is why a struggling Dun & Bradstreet Software recently summoned 50 of its largest customers to Atlanta for an update on where the vendor stands since it was put up for sale on Jan. 9.

Executives promised users that new products and enhancements would continue to roll out on schedule. These include summer releases of SmartStream for Microsoft Corp.'s SQL Server 6 and D&B Software's enterprise workstation product, a graphical user interface to its mainframe software.

What wasn't forthcoming was word of a new owner, and analysts don't seem optimistic.

Meanwhile, the meeting two weeks ago was in no way a means of staving off defections by jittery customers, company officials said. Rather, it was "a continuation of a proactive plan to address customers' concerns," said Craig S.

Richardson, vice president of sales and marketing.

"Our product plans haven't changed," he said.

Indeed, "We were assured there would be continued research and development on the product," said John Dawson, a vice president of manufacturing at Cleveland-based Owens-Illinois Corp.

Late last year, the \$3.7 billion plastics and packaging manufacturer purchased D&B Software's SmartStream financial and manufacturing software to use throughout the 56-plant company. "The bottom line is that it was reassuring, but we're still keeping a careful watch on what's going on," Owens added.

So is D&B Software user Dick Hudson, chief information officer at Global Marine, Inc., a \$500 million offshore drilling company in Houston.

For now, Hudson says D&B Software's status as a company without a buyer "is not a source of great concern." He said technol-

ogy stocks are volatile and added "it would be hard to sell a software company in 30 days or so."

"But if you called me back in August, I'd [have been] concerned," Hudson said.

Analysts contend that D&B Software aggressively shopped itself around even before its official Jan. 9 spin-off from Dun & Bradstreet Corp. but couldn't find any takers.

With no buyers on the horizon, the \$350 million software maker is now said to be aggressively courting venture capital investment.

"The difficulty a venture capitalist would have with D&B is there's a huge expense base compared to a start-

up. It's not a conventional venture capital opportunity. It's larger, with more baggage," said Jim Duggan, a technology analyst at First Albany Corp. in Albany, N.Y.

Even so, an optimistic CEO Doug McIntyre last month outlined plans to hire 100 software developers and invest approximately \$70 million in new products this year.



User Dick Hudson isn't worried — yet — that D&B Software hasn't found a buyer

Today, it's developers turning to help desks

By Bob Francis

The days of the isolated, Maytag repairman-style help desk may be numbered. That's because help desk vendors are being courted by systems and network management developers that want to integrate help desk capabilities into their systems.

For example, McAfee Associates, Inc. in Santa Clara, Calif., recently acquired a help desk provider, and rival Tivoli Systems, Inc. is adding a slew of modules designed to link various help desk vendors into the Tivoli Management Environment (TME).

Those partnerships aren't likely to be the last because several other help desk vendors are in talks with network management suppliers such as Symantec Corp. and Seagate Technology Corp.'s software group, analysts and industry officials said.

Meanwhile, the systems management vendors want to link help desks and their databases into management consoles so information systems managers can keep apprised of increasingly complex network problems, according to Jack Gold, an analyst at Meta Group, Inc. in Boston.

"As these networks continue to

grow, [IS] needs to know where the problem areas are from several different sources — a key one being the help desk," he said. By integrating or providing access to the databases of the help desks, network managers can better monitor their networks and applications, he said.

Another acquisition

Earlier this month, acquisition-minded McAfee snapped up Vycor Corp., a growing help desk provider in College Park, Md., for \$9 million. Both Vycor's software and McAfee's SaberTools PC network management tools are built around SQL databases, which will make it easy to integrate the two lines, McAfee officials said.

Last week, Austin, Texas-based Tivoli added three Tivoli/Plus modules to integrate help desk products with the firm's TME systems management product. Earlier this year, Tivoli added support for Remedy Corp.'s AR System help desk. The three new modules are for Clarify, Inc.'s ClearSupport, Peregrine, Inc.'s Service Center and Scopus Technology, Inc.'s Scopus Help Desk. The TME modules let systems administrators deploy and manage help desk applications through TME.



Bill Gates

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Evaluating the CIO

Just what is the chief information officer's role? Many CEOs cannot answer this question. Indeed, even CIOs have difficulty. If you are a CIO, or if you work with one, here is your opportunity to test your organization's success at developing the CIO function. Grab a pencil and turn the page. BY THOMAS J. BUCKHOLTZ

Dear CIO:

This leadership test is designed to measure your performance and identify areas where you need improvement. As you go through the test's six sections, reflect on how well each one characterizes the job you do and the position you would like to create for yourself.

Then ask your staff, your boss and other key executives and colleagues to use the test to rate your performance. The feedback they provide and the discussion it creates will help you explore new opportunities and will help them understand the nature and complexity of your job.

To the CIO's colleagues: This test is designed for feedback so the CIO can enhance his or her contribution to the corporation. Your responses will give the CIO valuable information, and you will gain insight into the service a CIO can provide.

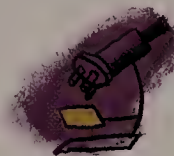
Instructions

This leadership test includes six categories that describe key corporate roles of the CIO:



I. Technician

Focus: Information technology
Theme: Keep systems running



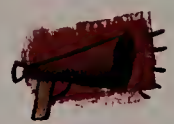
IV. Analyst

Focus: Insight
Theme: Make recommendations for the corporation



II. Clerk

Focus: Information systems
Theme: Process transactions and provide useful data



V. Coach

Focus: Corporate proficiency
Theme: Help people develop skills and accomplish the corporate mission



III. Librarian

Focus: Information resources
Theme: Provide expected and unexpected useful information



VI. Executive

Focus: Corporate goals and results
Theme: Take strategic action on behalf of the corporation

Within each of the six categories, this test presents four items, or "corporate needs," to which the CIO can contribute. For each corporate need, rate the CIO's leadership on a scale from 0 to 3 as follows:

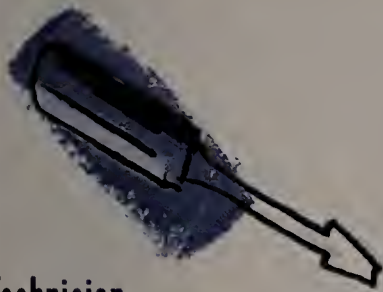
0. Wallflower. The chief information officer and the information systems organization the CIO manages have no significant role.

1. Opportunist. The CIO and the IS organization make some contributions, but are not executing client-approved plans. (Clients typically are internal to the corporation but may include external organizations and individuals, such as customers, suppliers or business partners.)

2. Partner. Clients and the CIO have agreed on plans and are meeting objectives.

3. Laureate. Executives and other clients agree that the corporation is meeting its objectives, and that the CIO and IS organization are contributing significantly.

With four items scored from 0 to 3, the total score for each of the six categories will range from 0 to 12.



Technician

The CIO's Technician role includes leading the corporation's technology strategy and ensuring that clients are able to use technology advantageously.

For each of the following four corporate needs (A through D), provide a CIO leadership rating from 0 (Wallflower) to 3 (Laureate).

A. Infrastructure. Hardware, software tools and services perform well and fully support core corporate operations, such as product production, customer services, and accounting. Score (0-3): ____

B. Integration. The infrastructure technology and services foster widespread creativity and teamwork — through communication and data sharing among employees — and are integrated appropriately to support current and future corporate business success. Score: ____

C. Optimization. Infrastructure operations are being maximized in efficiency and minimized in cost (such as by consolidating network administration or acquiring corporatewide software licenses). Score: ____

D. Modernization. New technologies are deployed when appropriate (such as video conferencing, mobile data communications, or parallel-processing computers). Score: ____

Total Technician Score (0-12): ____



Clerk

In the Clerk role, the CIO ensures that the corporation effectively and efficiently processes business transaction data and other routine information.

A. Databases. Transaction databases and their applications fully support core corporate operations such as finance, customer service and procurement. Score: ____

B. Data resource. A data architecture encompasses the corporation's significant computerized data and applications; the data and applications fit the architecture; and the corporation thereby outmaneuvers less sophisticated competitors. Score: ____

C. Efficiency. The corporation continually improves and lowers the cost of data services (for example, by eliminating redundant systems or deploying an off-the-shelf manufacturing system). Score: ____

D. Data sharing. The corporation conducts electronic commerce with customers and suppliers (such as developing an electronically integrated "supply chain") or, if appropriate, shares other information with external clients and business partners. Score: ____

Total Clerk Score (0-12): ____



Librarian

As a Librarian, the CIO ensures that clients find, interpret and use information appropriate to their needs.

A. Information resource. The corporate information architecture includes all appropriate internal recorded knowledge, including information recorded on paper, and information from external sources such as business partners, information services, CD-ROM or the Internet. Score: ____

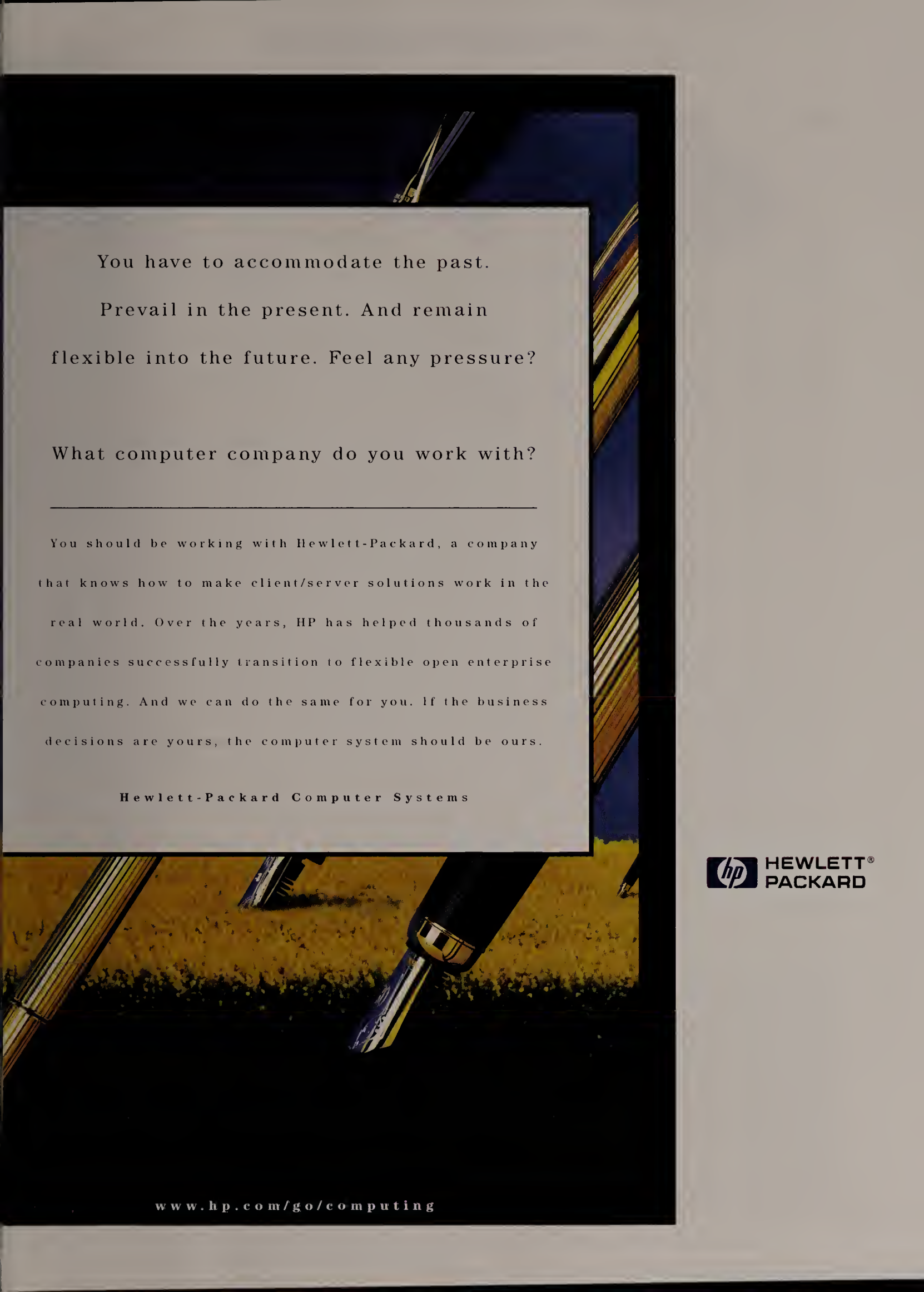
B. Knowledge reuse. The corporation is amassing and benefiting from an aggregation of data and procedures generated in the course of employees' and consultants' work (such as generating a library of client-developed software applications or capturing clients' knowledge via groupware). Score: ____

C. Appropriate information. Employees use the best information available (for example, they optimally formulate and satisfy their information needs, or they effectively use software tools for content- or context-based information searches). Score: ____

D. Information use. Employees interpret, use and share information appropriately and correctly (for example, they assess and take into account the trustworthiness of information). Score: ____

Total Librarian Score (0-12): ____





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Analyst

The CIO's Analyst responsibilities include suggesting and evaluating corporate opportunities, including opportunities to design or change products and processes outside the CIO's jurisdiction.

A. *Systems.* Processes are designed and information resources are implemented that support clients' improvement projects (for example, the IS organization specifies the requirements for a new manufacturing management system). Score: ____

B. *Risk evaluation.* When making major decisions, such as decisions about mergers or new products, the corporation considers the opportunities and risks associated with information resources and systems. Score: ____

C. *Information-based improvements.* The corporation identifies and evaluates opportunities, based on information resources and technology, to improve its products or work effectiveness (for example, the CIO suggests developing a product or service enhanced by an emerging technology). Score: ____

D. *Other opportunities.* The corporation taps the CIO's nontechnical insights when considering improvements to products, time-to-market or back-office procedures (e.g., it uses the "Why not do X?" insights the CIO has from working with clients, business partners and other corporations). Score: ____

Total Analyst Score (0-12): ____



Coach

As a Coach, the CIO enhances corporate and individual abilities and achievements. The Coach's contributions focus on the entire corporation.

A. *Mentoring.* The corporation benefits from client-led information resources or systems projects (e.g., the CIO and IS organization help clients become self-sufficient in acquiring special-purpose information systems). Score: ____

B. *Products.* Clients create profitable products or services based on technology or information resources (for example, the CIO and IS organization help clients create or market such products or services; this contribution transcends just proposing an idea). Score: ____

C. *Proficiency.* Clients improve their abilities to make and implement routine nonautomated decisions or non-routine decisions (e.g., the CIO and IS organization lead an improvement program to help clients enhance their proficiency to make, communicate and implement decisions). Score: ____

D. *Catalysis.* The CIO and IS organization lead endeavors, outside the CIO's jurisdiction, to enhance corporate effectiveness (for instance, to improve customer services through process redesign). Score: ____

Total Coach Score (0-12): ____



Executive

The Executive CIO earns profits or at least serves as a fully contributing member of the senior management team.

A. *Management-team membership.* The corporate executive team benefits from the CIO's significant contributions both to decisions that feature information resources and systems and to decisions that do not. Score: ____

B. *Management-team proficiency.* The corporate management team enhances its processes, information and abilities to make and implement decisions (for example, the CIO conducts a process improvement program or serves as a facilitator). Score: ____

C. *Profit center.* The corporation earns profits by the IS organization's selling, to corporate-external customers, products or services currently being provided to internal clients (such as the consulting or software services being sold by some telecommunications and aerospace companies). Score: ____

D. *Business unit.* The corporation earns profits because the IS organization sells products or services not originally targeted for clients within the corporation (as do some energy utilities, which sell, or are evaluating selling, energy-usage-control or general-information services to utility customers). Score: ____

Total Executive Score (0-12): ____

Planning Your Future

To the CIO:

Use your self-evaluation and your colleagues' ratings and recommendations to develop your personal game plan.

Review the ratings for the 24 corporate needs. If you often score 1, Opportunist, consider building closer relations with your clients. Scores of 2, Partner, indicate that your successes could be better marketed for corporate and personal benefit. Scores of 3, Laureate, suggest springboards toward improvement elsewhere.

Next, target improvements in each of the six categories. Even if you score well as a Technician and Clerk, consider to what extent these activities comprise an essential but underappreciated

pieces of information, and you must educate people about information resources and knowledge management.

Analyst is the first category for creating ideas beyond your nominal responsibilities. Use your personal perspective, your knowledge of the corporation and its markets, and the information you help the corporation acquire, maintain and use. It is a sign of your success when executives invite you to suggest improvements within their own jurisdictions.

The key to success as an Analyst, Coach or Executive is personal initiative. Seek, create, and capture opportunities to put good concepts to use throughout the corporation.

Strong Coach and Executive contributions are commendable. Clients and management look to you for lead-

applications development skills, keep your resume up to date and do not ignore employment overtures from systems integrators.

Clerk - If you cannot become at least a Librarian, consider how long it will be before corporate needs exceed your capabilities. Keep your applications development skills current, as well as your resume.

Librarian - If you do not expect to broaden your scope of service, prepare for difficulties in joining or staying on the senior management team.

Analyst - Besides becoming a Coach, possible career paths include leading a different staff function, such as corporate planning.

Opportunities abound, throughout the Technician-to-Executive leadership spectrum, to provide Laureate service. The key is your personal initiative. Create and capture the best opportunities for the benefit of your corporation, colleagues and career.

function. Market the competitive advantage you generate — such as improving corporate capability and flexibility to meet today's and tomorrow's challenges. Market your role in enhancing people's abilities to share information and develop teamwork. Be sure to talk with peers and bosses using a non-technical vocabulary.

Librarian and Analyst roles provide you valuable opportunities to team up with your bosses and peers on their crucial projects.

Emerging technologies and services are providing you the wherewithal to be a comprehensive Librarian. Success depends on knowing your clientele and their information needs, as well as the information the world offers. You must reinterpret clients' requests to ensure finding those "unexpected" key

ership as well as service.

Next, assign priorities to each of the six categories and determine to what extent you will focus on each of the 24 corporate needs. Also, review your working environment for other ways you can provide value and foster positive images for you, your colleagues, your corporation and your profession.

Finally, consider the following career advice, based on your highest-numbered category (I. Technician to VI. Executive) of strength not jeopardized by weaknesses elsewhere:

Technician - If your circumstances demand that you remain a Technician, enhance your

Coach - If you cannot directly achieve Executive level service, your next step may be to lead a business unit or more staff functions.

Executive - You have potential to become chief operating officer, but you may need experience leading a different business unit. Take extra care to coach other people, if for no other reason than you may need to find your own replacement when you receive a promotion. ♦



ABOUT THE AUTHOR

Thomas J. Buckholtz, Ph.D., is a management and marketplace consultant. Previously, as a commissioner in the U.S. General Services Administration, he served as the GSA's CIO, led a \$1 billion business unit, and oversaw \$20 billion per year in federal information resources and technology deployment.

Buckholtz is the author of *Information Proficiency: Your Key to the Information Age* (Van Nostrand Reinhold, 1995). He can be reached in Portola Valley, Calif., by telephone at (415) 854-7111 or on the Internet at TomTJB@aol.com.

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AGENDA

MORNING SESSIONS - 9:00-12:15

- **Hype, Health, and Heartache in IT and Communications Markets**
Vicki J. Brown, Senior Vice President
- **The Era of the Wired Consumer: Discontinuity, Opportunity, Success, and Failure**
Frank Gens, Senior Vice President, Worldwide Research
- **The Internet's Impact on Corporate Computing**
David Vellante, Senior Vice President, Systems, Software, & Storage
- **Technologies for the Wired Market**
John Gantz, Senior Vice President, Personal Systems and Collaborative Computing

Session A 1:15 - 1:55	Session B 2:00 - 2:40	Session C 3:00 - 3:40
TRACK 1		
Planet PC: The Global Market Perspective Bruce Stephen	Home Computing: Fitting and Creating Demand Richard Zwetckhenbaum	Mobile Computing and Communications in the Connected Age Randy Giusto • Michael French • Iain Gillott
TRACK 2		
Cyberbucks: Mass Market Retailing Gigi Wang	Application Hosting in the Cyber Millennium Mark Winther • Michael Sullivan-Trainor	CyberAge LANs Lee Doyle
TRACK 3		
Systems & Server Market Dynamics Jay Bretzmann	Will Intel Own the Workstation Business? Dr. Thomas Copeland	Internet Servers of the 21st Century Susan Frankle • Mark Winther
TRACK 4		
Opportunity in Networked Software Dr. Anthony Picardi	Where's the Leverage: Database or Applications? Clare Gillan • Dan Kusnetzky	Can Netscape Break Microsoft's Stranglehold? David Card
TRACK 5		
Developing Channel Partnerships for Superior Service Delivery Traci Bair	Marketing Desktop Services: Hidden Costs No Longer Hidden Kurt Johnson	Distribution in the Era of the Electronic Marketplace To Be Announced
TRACK 6		
Worldwide IT Market Outlook Philippe de Marcillac	Network Computing Challenges in Latin America Paul J. Pastrone	IT Market Restructuring in the Asia/Pacific Region Davis Flax

CLOSING SESSION - 3:55 - 4:40

- **Industry Call-To-Action**
Dr. Robert Metcalfe, Vice President of Technology, IDG; Inventor of Ethernet

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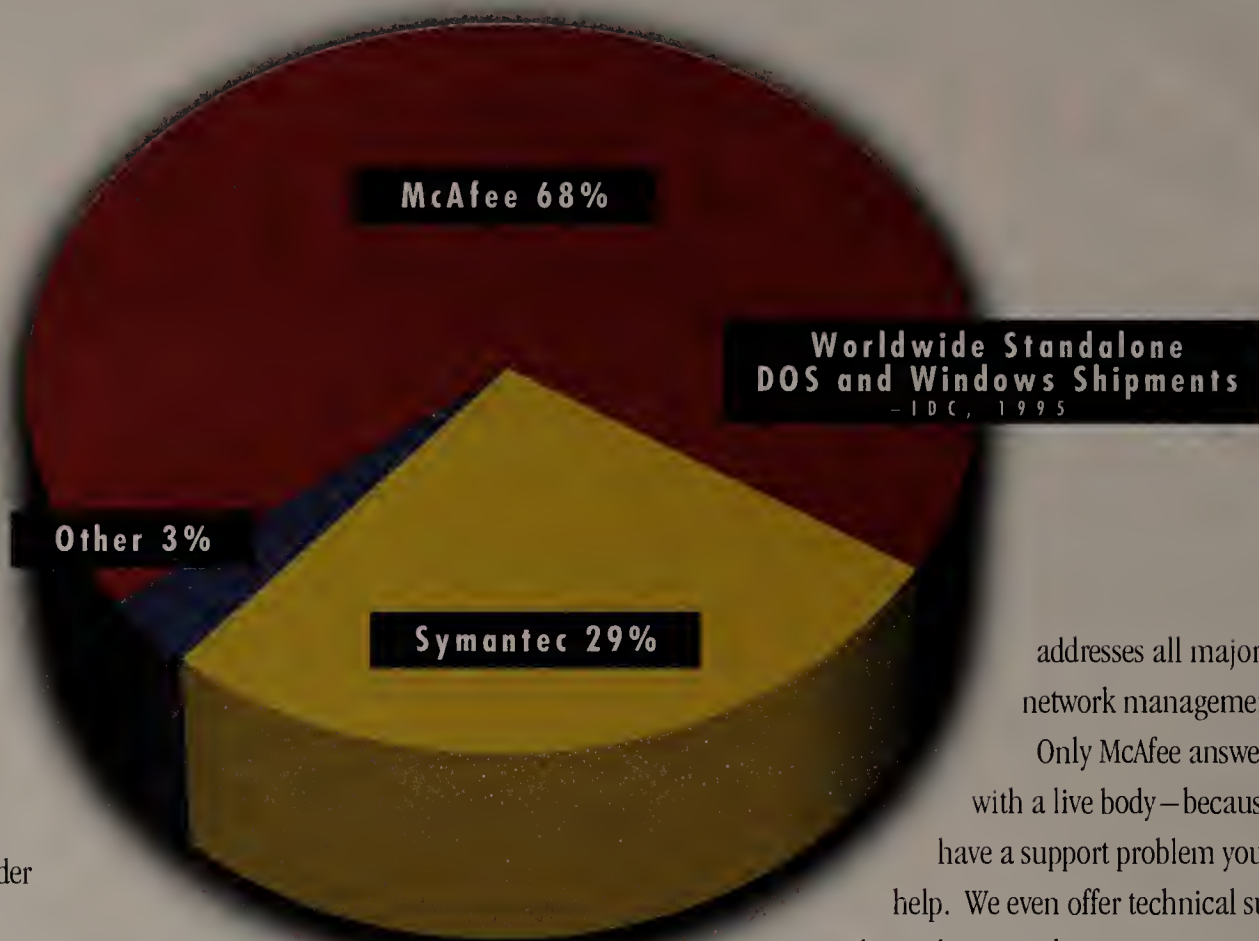
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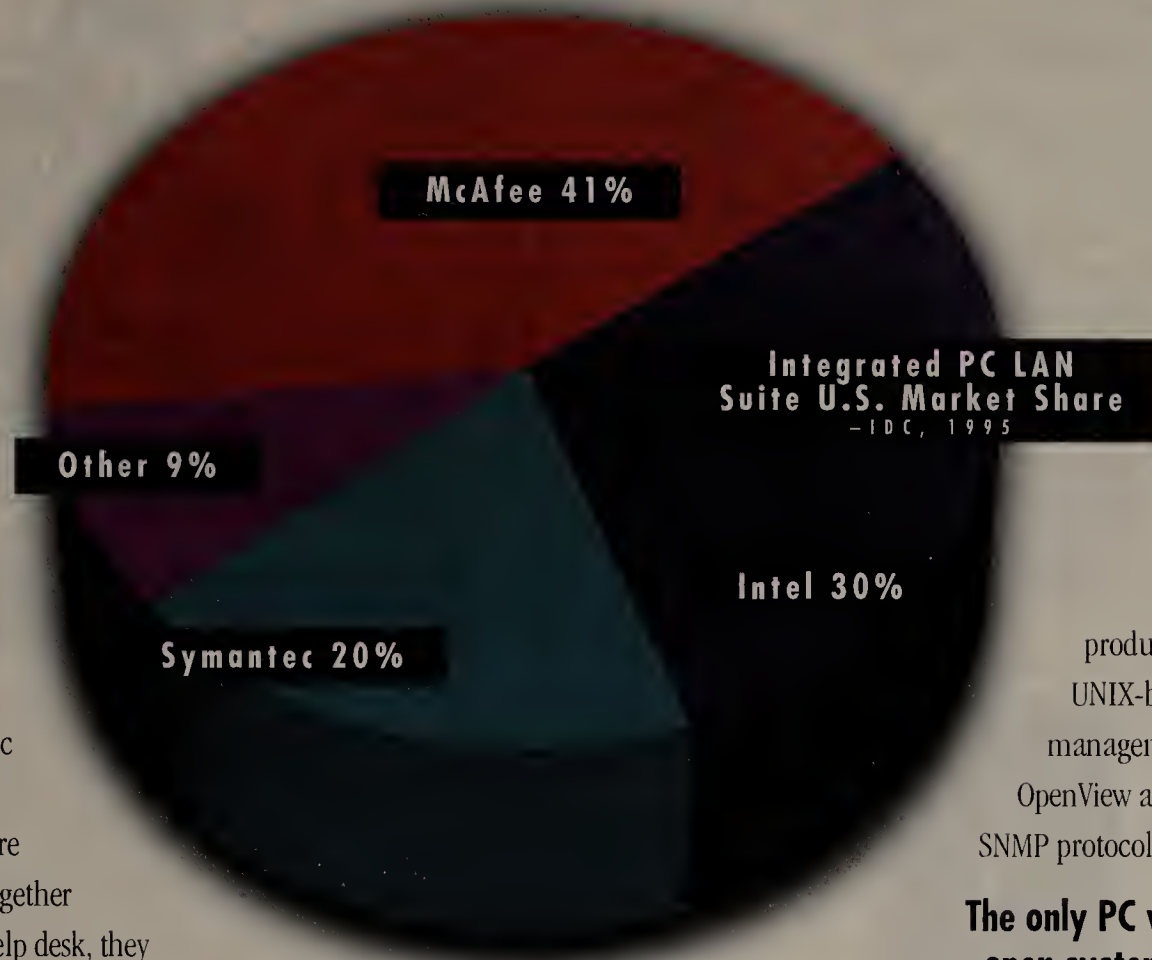
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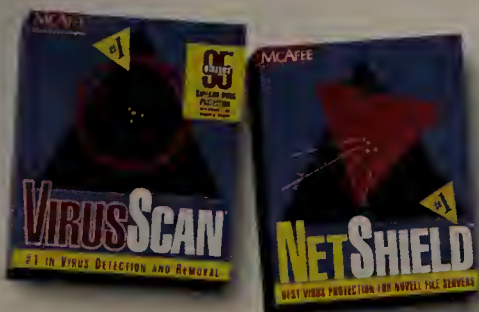
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SNMP UNIX	X	X	NO
SQL	X	NO	NO

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Anti-virus	X	X	X
Remote Control	X	NO	X
Storage Management	X	NO	X
Desktop Management	X	NO	NO
Help Desk	X	NO	NO
Performance Tuning	X	NO	NO

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Editorial

AOL's sellout

Add Steve Case to the list of so-called industry "visionaries" whose principles can take a backseat to profits.

You remember Case, don't you? The chairman of the wildly successful America Online took a highly visible stance against Microsoft's entry into the on-line market last summer. Case complained bitterly that Microsoft's bundling of The Microsoft Network (MSN) with Windows 95 was anticompetitive.

Well, enter whining, exit whistling. With a stroke of the press-release print key, Case and old foe Bill Gates kissed and made up last week. Microsoft will now offer AOL along with MSN on the Windows 95 desktop. And America Online, in a snub to new partner Netscape, will bundle Microsoft's browser with its access software.

America Online tried to "spin doctor" the deal as a victory for all on-line service providers because Microsoft was giving in on MSN's exclusivity in Win 95. Dream on. Microsoft made no definitive statement on that issue. Instead of holding out for a victory for the on-line industry, which a statement from Microsoft would have been, Case took his winnings and cashed out. In the process, he kicked Netscape, with which America Online had reached a bundling agreement just one day before, right in the stomach. Thanks, pal.



I wonder if Gates wakes up these days wondering if there are any challenges left out there anymore. Microsoft was losing the battle with America Online anyway, and giving away AOL software isn't going to materially affect the service's outlook. And in exchange for essentially providing AOL's ubiquitous free disks in the Windows 95 cereal box, Gates gets three big wins. Microsoft gains a huge new distribution channel for a browser it was giving away for free anyway. Its most dangerous competitor — Netscape — is publicly humiliated. And to complete the three-point play, Gates turns vocal critic Case into a Microsoft booster. The effective net cost to Microsoft is just about zero.

What's disappointing about the announcement is watching Case backtrack on the principles he so vociferously promoted last year for the sake of an opportunistic deal. Case deserved credit for taking a public stand against Microsoft when other industry executives were hiding behind anonymity. Had he pushed just a little harder, he could have justifiably positioned this deal as a victory for the little guys. Instead, he let Bill Gates buy him out. For a song.

Paul Gillin, Editor
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Letters to the editor

Courts must go by the letter of the law

I am an intellectual property attorney with a pretty broad background in computing. You express confidence that judges would not take the wording of the Communications Decency Act (CDA) literally ["Defending limits," CW, Feb. 26]. Unfortunately, the standard that any court must use is the "plain meaning" of the language of the statute. Law must be executed without regard for the inherent contradictions. The very idea that a judge should second-guess the legislative branch is anathema to the majority of judges.

There are no standards for the definition of obscenity in the law. The prevailing community standard is different in New York City from the standards in Kansas City and Stockholm.

The courts really have no concept of the issues and complexity of the on-line community. I am pursuing a suit in which two teen-age hackers broke in to one of my accounts, placed beneath my electronic-mail directory a rabbit's warren of pornographic images and cracking software and sent messages from my account to other parties without my knowledge. I am in the process of explaining to computer-illiterate defense counsel and parents what all the fuss is about. It is not a trivial task. It will not be trivial to explain these issues to the judge or the jury.

The CDA prohibits transfer or access to information regarding human sexual or excretory functions. The courts are going to interpret that statute — if it isn't struck down — as broadly as it has been written. Laws and programs are roughly

equivalent. You would not stand for sloppy code in a mission-critical application, and we cannot stand sloppy drafting of laws that directly affect our lives.

Finally, I must say that I again disagree with you regarding your inability to regulate your children's on-line activities. I certainly regulate my 14-year-old's access, and I have made it quite clear to him what is and is not acceptable. That is my job as a parent, not the government's.

George R. O'Connor
Matalone & O'Connor
Independence, Mo.
law@sound.net

Cable isn't ready for telecommunications

Regarding the notion of cable TV companies offering telecommunications services ["Telco managers dial for reform dollars," CW, Feb. 5], I have the following two questions for your readers:

- 1) How many times in the past year has your cable TV service been interrupted, even if only for a minute?
- 2) How many times in the past year has your telephone service been interrupted?

Based on my experience, I would guess that the answer to Question 1 far exceeds the answer to Question 2. I can count my telephone outages in the past year on zero hands; I've already lost track of the number of cable outages in the past month.

How can any reasonable information systems professional trust a cable provider's cable TV lines to deliver critical telecommunications services when those lines go down every time it rains hard? The "ready-made infrastructure" you refer to is

far too unreliable for me to even consider using my cable provider as my telecommunications provider.

Keith Stillinger
Implementation consultant
R & O, LLC
Atlanta
bear@rochade.com

Don't blame the tool

Bruce Tong's letter complaining about his Week-At-A-Glance planner not being organized is a case of blaming the tool ["It's all in the timing," CW, March 4]. Failure to maintain your resource file is a personal problem, not a tool problem. Because most address directory sections are separate from the weekly planner, they don't need to be replaced yearly. Moreover, I can keep myself supplied with annual weekly planners for the remainder of my working life for far less than the cost of a personal digital assistant toy.

I'm certainly no Luddite, yet I will stay with my "paper dinosaur" planner, thank you.

Steve Martin
Denver
samarti@milton.ecte.uswc.uswest.com

■ Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Paul Gillin, Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Chris Miksanek

See the \$500 PC. It uploads! It downloads!

Folks, I'm here to introduce the PC Appliance, a revolutionary device designed to perform basic computing tasks without the cost or features of larger, more advanced machines.

Now how much would you expect to pay for the PC Appliance?

Don't answer yet because we're gonna throw in a keyboard, a mouse and some no-frills software. Separately, these items might fetch as much as \$3,000, if they were as robust and sophisticated as their fully functioning counterparts. But you can have this limited-function PC Appliance not for \$3,000, not for \$2,000 and not even for \$1,000. Everything you see here is only \$500. You heard me right, \$500.

What's that you say, friend? You just bought a comparably crippled machine at a garage sale for \$75, and it was called an IBM XT?

Step aside son, you're bothering me.

And, if you're one of the first 2.5 million to order, we're gonna throw in this "at one time top-of-the-line" printer worth \$100. Yes, that's right. Why pay \$800 for laser quality or even \$300 for near-laser quality, when you can have dot matrix quality? And we're gonna throw in not one, not two, but three reinked ribbons.

What's that, my industry-savvy friend? You saw an old Epson nine-pin at a swap meet for \$15? You

must be mistaken. This one includes the manual.

So here's the deal: You get the PC, the printer, all the manuals and — if you commit to the \$500 PC right now — we're gonna throw in the incredible \$35 modem. That's right, call Bellevue, we've lost our minds. We're going to give away a perfectly operational 300 bit/sec. modem with every order.

Convinced? Pal, I'm going to ask you nicely to stop using profanity. I don't understand what you mean by, "One man's trash is another man's marketing coup."

Don't think that because this is a modestly priced PC, you won't be able to play some of the most popular games of all times. Act now, and we'll throw in an Entertainment Package worth \$25 that includes the classic Zork. Remember those great days of text-based adventure games when you needed to use your imagination? Well, that imagination will come in real handy as you think about the usability of the \$500 PC.

What's that, my vociferous friend? Why would anybody buy a \$500 PC today when that same PC will be marked down to \$299 in a few months —

but no one will want it then either because the new \$500 PC will be so much better?

Well, why didn't you say you were a corporate buyer? Allow me the opportunity to discuss, over a complimentary trip to Barbados, how the \$500 PC isn't just a *solution*. It's a *paradigm* that can save your firm *big bucks*. Ever heard of client/server, TCP/IP and network management? So have we, and in 10 years, the \$500 PC will support them, too.

Hmmm. Still not convinced? What if we threw in a

Chia Pet, a smokeless ashtray and a Veg-A-Matic? Now would you be willing to pay \$500? At least tell me we're closing in on the sale.

Miksanek finds it suspicious that the \$500 PC concept was introduced about the same time a cache of Commodore 64s was recovered off the coast of San Jose, Calif.



Order now, and we'll throw in the dot matrix printer and the Chia Pet.

Michael F. Cavanagh

E-mail privacy: A glass almost half-full

A half-dozen years ago, the relatively young E-mail industry faced a serious threat from lawsuits and headlines that suggested that managers were spying on employees by reading their E-mail.

It seemed as though the entire weight of the privacy lobby was pressing on E-mail administrators and vendors. Ill-conceived legislative proposals also arrived on Capitol Hill.

Sticky questions were being raised. Could E-mail be opened by supervisors? Should that be restricted? What type of disclosure to employees is appropriate? Don't superiors and colleagues open desk drawers and file cabinets and locked offices to retrieve information in business emergencies?

So the Electronic Mail Association (now the Electronic Messaging Association) in 1991 commissioned privacy attorneys David Johnson and John Podesta to write a booklet on the complexities of E-mail privacy and corporate options.

In the strongest possible terms, the association's No. 1 recommendation was that every employer should have a privacy policy — covering E-mail and other aspects of work life — and tell employees precisely what that policy is.

Why? To prevent misunderstandings, which can lead to strained relations and lawsuits. Some employees get the notion that because they work at a "personal" computer, the messages traveling to and fro on the corporate network can be seen

only by the intended recipient.

A good privacy policy will tell employees under what circumstances — such as business necessity, safety investigations and subpoenas — their E-mail may be seen by others. One caution: Trying to be too specific might work to the detriment of all involved when an emergency occurs.

So what has happened since the publication of the 1991 booklet? Survey results just released by the Society for Human Resource Management (SHRM) in Alexandria, Va., provide some clues. The survey drew from a random sampling of 3,000 SHRM members, with more than 500 responding.

The SHRM survey found that just under 40% of the organizations that use E-mail have implemented written E-mail privacy policies. While this isn't as high as we'd like to see, it's a remarkable figure in light of the relatively short time that E-mail has actually been deployed in the workplace.

The figure is even more striking when contrasted with the sorry state of privacy policies for more traditional elements of business life. Less than one-third of all SHRM respondents reported having any privacy policies about access to desk drawers, file cabinets and lockers, for example.

Why are there more policies governing E-mail than ones governing a worker's desk? "Privacy policies are equally important for paper-based information as they are for digital information, but

it appears that E-mail provides the impetus for many organizations to get a grip on privacy issues," observed SHRM President and CEO Michael R. Losey.

The survey identified three other issues that need to be addressed:

- More than 50% of the respondents didn't provide confidentiality training for IS staffers who might have access to E-mail.
- Only about 30% of the surveyed organizations inform their employees that E-mail messages, just like paper documents, can be demanded as part of discovery in court actions.
- Only about 20% of respondents indicated that their organizations have adopted a formal records-retention policy for E-mail.

Of course, simply having an E-mail policy isn't a panacea. Policies must be updated, communicated and enforced. And some would argue that having a policy isn't the final step in the evolution of workplace privacy.

Still, this may be a time when we can briefly pause and say that quite a bit has been accomplished. Then, it's time we get back to work and make workplace privacy policies the overwhelming rule, rather than the exception, in corporate America.

Cavanagh is president of Cavanagh Associates, Inc., an Arlington, Va.-based consulting firm. From 1983 to 1993, he was the founding executive director of the Electronic Mail Association. His Internet address is 5846337@mcimail.com.

The best practice is to have a privacy policy and tell employees what it is.



Good news: 40% have an E-mail privacy policy. Bad news: 60% still don't.

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Sales of multiprocessor
superservers are surging, 41

Servers & PCs

Scaling to new heights

By Michael Goldberg

Users staring at the scalability limits of symmetrical multiprocessing servers, take note. New processing capabilities are due later this year, when two vendors unveil technology that gives a shared-memory feel to parallel systems.

Sequent Computer Systems, Inc. and Data General Corp. plan to introduce servers based on Non-Uniform Memory Access (NUMA) technology, which uses four-processor Pentium Pro-based boards from Intel Corp. [CW, Oct. 16].

Observers said NUMA servers scale to heights now reached only by massively parallel systems. They are also as easy to use as symmetrical multiprocessing servers because NUMA doesn't require users to rewrite software.

Sequent officials said they expect their NUMA-based servers to reach 252 processors. Data General executives in Westboro, Mass., said the scalability of their servers will depend on market demand. Both vendors offer Unix-based systems that scale to about 30 processors.

Users who work in environments where data processing demands grow annually said they looked at Sequent's

Simplify, simplify

Sequent's design, NUMA-Q, which stands for Non-Uniform Memory Access for quads, gives a single system image to a parallel-processing computer design.

NUMA uses four-processor ("quad") Pentium Pro boards as the building blocks and a high-speed interconnection to access memory distributed across up to 63 quads.

The speed of the memory access across these quads — 2 to 3 microseconds to check memory in 63 quads — minimizes potential data bottlenecks and makes it possible to use applications as if they had one set of instructions.

technology road map — and the future scalability offered by the NUMA architecture — when they picked their hardware platform.

Future scalability "was one of the things ... we were looking for," said John Hickey, senior vice president of production services at the Nasdaq Stock Exchange in Trumbull, Conn.

Need for speed

The National Association of Securities Dealers runs Nasdaq and last year used Sequent's Symmetry servers to set up a gatekeeper system for traders who use such servers.

NUMA provides high-speed interconnections among processing nodes or four-processor boards. Each node

has four processors that share memory and I/O resources. The interconnections let processors in one node check the memory in another node.

In Sequent's NUMA implementation, a gallium arsenide chip pumps information about memory locations among the different nodes at a rate of 1G byte/sec. At this speed, the processor boards appear as a single board to operating systems and software applications, according to Sequent officials.

Data General has a similar strategy for its NUMA implementation, which emphasizes technology by Dolphin Interconnect Solutions, Inc. in Westlake Village, Calif.

These interconnections among pro-

cessing nodes also promise a 1G byte/sec. access rate.

Analysts said NUMA-based servers, if introduced without major glitches, would become an important option for large systems users.

"The thing about NUMA which is most compelling from an end-user point of view is that there's no rewrite [of applications]," said Jonathan Eunice, president of Illuminata, Inc., a research firm in Nashua, N.H.

"This is a very important thing when you're choosing a technology" for an application such as a data warehouse or decisions support system, he said.

Eunice said he was skeptical of Sequent's claims that even the largest NUMA systems wouldn't require modifications.

Eunice said vendors or users might have to tweak such applications as database management systems, if only to optimize their performance for large numbers of processors.

NUMA is critical to vendors such as Sequent and Data General that seek to differentiate themselves even as other systems makers look at similar approaches, said Wayne Kernochan, an analyst at Aberdeen Group, Inc. in Boston.

He said Hewlett-Packard Co., for example, is considering using quad-processor boards in its HP 9000 line.

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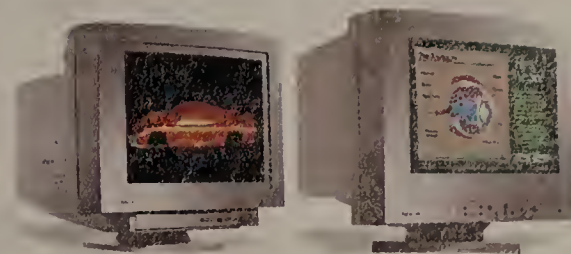
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Sales of multiprocessor superservers leap in '95

Appeal of Windows NT helps spur surge

By Jaikumar Vijayan

Sales of multiprocessor-enabled systems to corporations grew sharply in 1995, and analysts said they expect the trend will continue this year.

The number of multiprocessor superservers sold increased from 50,300 units in 1994 to 127,000 units in 1995 — a 150% jump, according to a recent report from International Data Corp. (IDC) in Framingham, Mass.

Driving the increase is a growing corporate interest in Windows NT and the availability of multiprocessor technology in lower-priced machines, analysts said.

Worth the expense

Multiprocessors cost more than uniprocessor servers, but one user said the cost is worth it.

"I am going to be doing it for future [upgradability] insurance," said Ben Copeland, manager of in-

formation systems at Benton Express, Inc., a freight company in Atlanta.

The spurt in superserver sales caps a year of torrid growth for the PC server industry as a whole. A strong surge in demand from small businesses, combined with sharply higher demand in Europe and Asia and large-scale corporate migrations to Intel Corp.'s Pentium technology, contributed to a bustling 58% growth rate for all servers last year.

Overall, PC server and multi-

processor superserver shipments grew from 536,500 in 1994 to 850,000 in 1995, according to IDC.

Analysts said they expect strong growth this year as well. The same market trends as last year, plus falling prices and an increasing standardization of the technology, are pushing PC servers deeper into the corporate mainstream.

"Windows NT and the growth of Intel-based servers being used as Internet servers, too, will have an impact, especially on the superserver market," said Linda Fitzpatrick, an analyst at IDC.

As a result, users this year can expect top-tier vendors to accelerate their efforts toward building low-cost, tightly integrated PC servers starting at about \$3,000.

And those servers will incorporate a range of specialized hardware and software, including more advanced and faster storage capabilities, high-speed network controllers, and configuration and management utilities.

"Vendors are adding a lot of value with things such as ECC

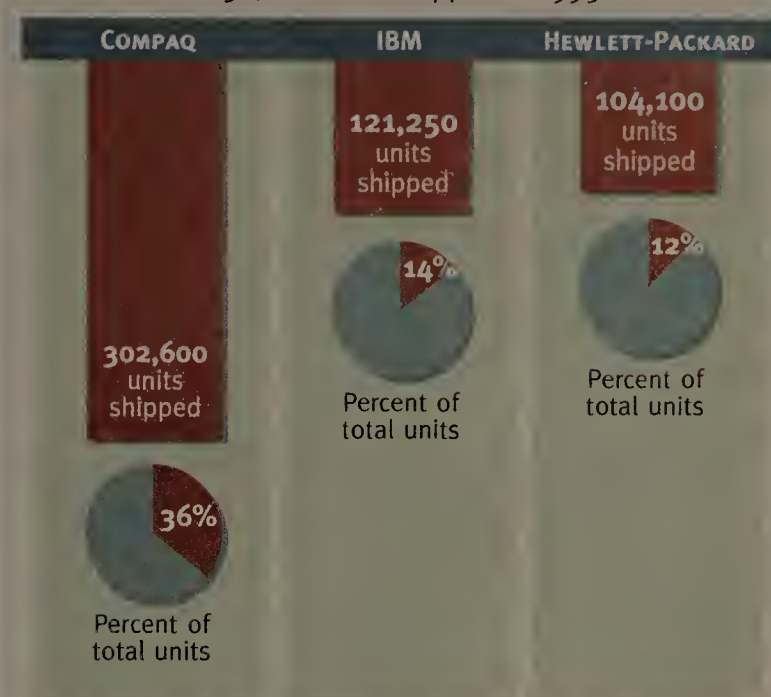
Server technology

Foreign markets

Though it didn't give specific numbers, IDC last week said the European and Asian PC server markets — particularly Japan's — were growing "significantly faster" than the U.S. market.

Best of the bunch

These top PC server vendors sold more than half the 850,000 units shipped in 1995



Source: International Data Corp., Framingham, Mass.

[Error Checking and Correction] memory, redundant power supplies, system management software and remote management capabilities," said Jim Garden, an analyst at Technology Business Research, Inc. in Hampton, N.H.

Meanwhile, in the market overall, there were no major shake-ups in market status last year. Compaq Computer Corp., IBM

PC Co. and Hewlett-Packard Co. dominated the market. Compaq remained far and away the market leader, with a 36% share.

Its status as No. 1 remained largely undiminished (see chart), except for an uncharacteristic blip in the peak fourth quarter, when sales growth dipped below that of the previous quarter as a result of backed-up channel inventory.

Briefs

New DEC swing

Digital Equipment Corp. last week introduced two high-end additions to its Celebris XL personal workstation family. The Windows NT-based Celebris XL 6180 and Celebris XL6200 feature Intel Corp.'s top-of-the-line 180-MHz and 200-MHz Pentium Pro chips and come with 16M bytes of RAM, a 256K-byte cache, a 1G-byte SCSI hard drive, 64-bit graphics and a four-speed CD-ROM. Prices start at \$5,049 and \$5,249, respectively. Both systems are available immediately.

Axil adds Solaris

Axil Computer, Inc. has announced a line of SPARC-based Internet servers that run Sun Microsystems, Inc.'s Solaris operating system. The AxilNet machines cost 10% to 25% less than Sun's Netra servers, according to Axil officials. Axil in Santa Clara, Calif., also included a system based on Sun's 64-bit UltraSPARC chip,

which is currently available from Sun only in its workstation servers.

Seagate adds 23.4G-byte drive

Seagate Technology, Inc. has announced a 23.4G-byte, 5¼-in. hard disk drive designed for large server installations. Seagate in Scotts Valley, Calif., also will introduce a 4.26G-byte drive for desktop PCs and a 2.25G-byte drive for portable computers. The drives should be available later this year.

New portable hard drives

CMS Enhancements, Inc. in Santa Ana, Calif., last week announced a line of hard drive upgrades for portable computers. The company's 810M-byte and 1.3G-byte hard disk drives were designed to increase storage capacity for portables from such makers as Compaq Computer Corp., IBM PC Co. and Toshiba America Information Systems, Inc. The upgrades are priced at \$802 for the 810M-byte and \$968 for the 1.3G-byte hard disk drives.

New Products

Regal Electronics, Inc. has introduced a four-speed, five-disc CD-ROM jukebox, Model CDC-4X.

According to the Santa Clara, Calif., company, the Model CDC-4X was designed for graphics-intensive design and multimedia applications. It weighs less than 4 pounds, measures 3 by 6.9 by 9.6 inches and uses snap-secure disc retainers.

The jukebox features a 614K byte/sec. data transfer rate and a 256K-byte buffer. It is compatible with SCSI-II and Macintosh, DOS, Windows 3.1, Windows 95 and Windows NT operating systems. Model CDC-4X costs \$495. Additional cartridges cost \$30 each.

► **Regal Electronics**
(408) 988-2288

Shinko Technologies, Inc. has unveiled ColorStream II, a color printer.

According to the Hayward, Calif., firm, ColorStream II is a dye-sublimation color printer with imbedded Adobe Systems, Inc. PostScript Level 2 support and professional color-matching software. It was designed for the

graphic arts, prepress and publishing markets.

ColorStream II features 300 by 300 dot/in. resolution and color calibrating software for accurate color matching. It has a RISC processor to speed up file processing, 16M bytes of RAM and a 543M-byte internal hard disk drive. It includes FasterRaster, an Adobe PhotoShop driver that talks directly to the printer for faster send and print times.

Pricing for ColorStream II starts at \$7,995.

► **Shinko Technologies**
(510) 441-1175

Falcon Systems, Inc. has introduced ReelTime, a RAID system.

According to the Sacramento, Calif., company, ReelTime delivers high-capacity storage, high-speed I/O throughput and hot-swappable components to users of Onyx and Challenge workstations from Silicon Graphics, Inc. It was designed to allow choices in storage capacity, disk drive form factors and RAID levels. It has a dual-controller architecture, with each controller supporting seven drives per disk channel.

ReelTime supports 5¼-in. full-height drives. Full- or half-height, single-ended and differential drives can also be used. All drives

can be narrow or wide and are hot-swappable. It features audible alarms when faults occur.

Pricing for ReelTime starts at \$18,000 for an entry-level system.

► **Falcon Systems**
(916) 928-9255

Argent Software, Inc. has unveiled Quota Server 2.1 for Windows NT.

According to the Torrington, Conn., company, Quota Server 2.1 lets a site set and monitor disk quotas on Windows NT. For each object on a disk, a site can set a quota and define executable actions when certain threshold levels are exceeded. It also monitors disk-consuming applications.

Quota Server defines three threshold levels as a percentage of the disk quota for actions to be taken. For each level it attains, measures can be taken, including notifying the end user, notifying the administrator, locking objects and writing to the event log. It includes a command-line utility that lets users import and export large numbers of quotas between spreadsheets and database programs.

Pricing for Quota Server starts at \$2,000.

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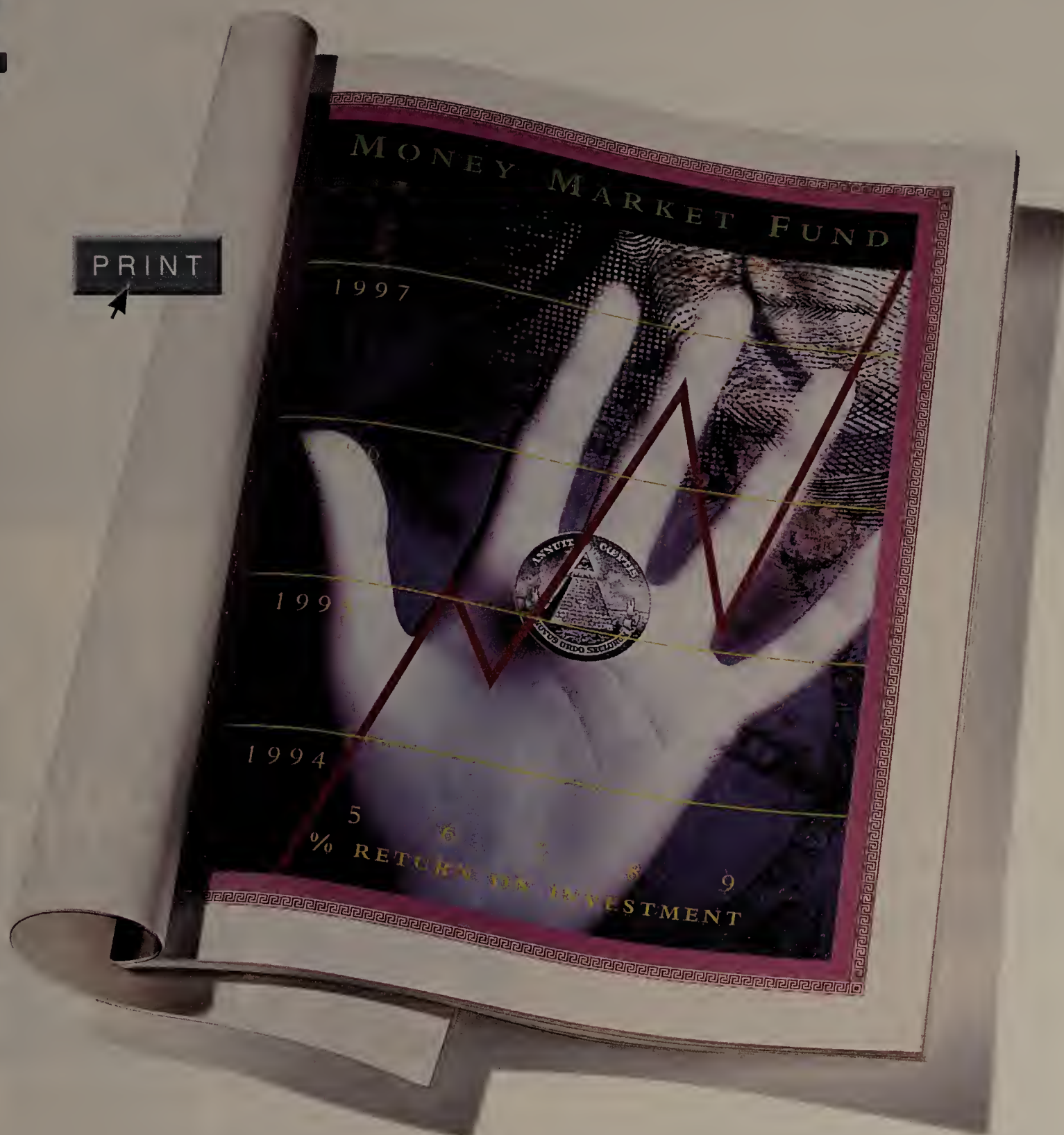
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Bristol Technology
and Mainsoft port
Windows apps to
Unix, 46

Software

45

Software

Geographic database finds home on the 'net

By Dan Richman

It's late at night. You're driving the back roads through Sacramento, N.M., and Miami, Ariz., on your way to Atlanta, Calif.

No, you haven't just entered the Twilight Zone.

You're probably an Internet cruiser who has entered the World Wide Web site for the National Geographic Names Database, the nation's official compendium of correct place-names. Or you work at a company that has purchased the CD-ROM version of the database to find, for example, hospitals below 4,000 ft. elevation.

A pharmaceutical company recently did this to help it test a drug that might have been dangerous to patients located above that height. A Virginia contractor used the database to locate all reservoirs in the state in an attempt to solicit business maintaining them.

The 1G-byte Oracle Corp. database is maintained on a Data General Corp. Avion server in Reston, Va., and contains

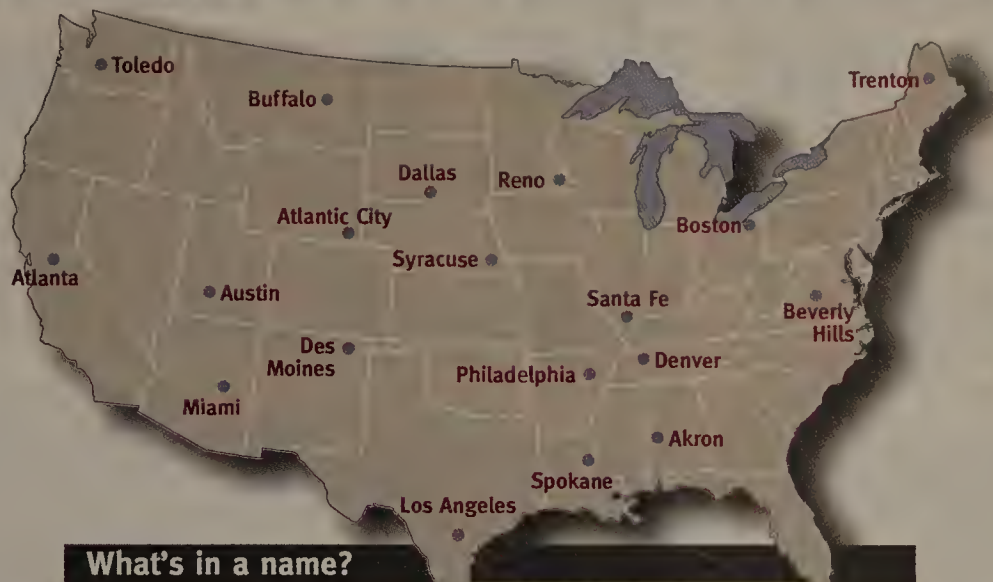
the names and locations of about 2 million geographic features in the U.S. It catalogs rivers, cities, arroyos, sloughs, isthmuses, swamps, hamlets, shopping centers and cemeteries. It even contains settlements that have been long abandoned and shoals now washed away.

"If it has a name, or had one, odds are about 75% it's in there," said Roger L. Payne, an official at the U.S. Board of Geographic Names, the federal organization charged with providing uniformity in geographic naming and spelling. Between 5,000 and 10,000 new entries are made per month, mostly from local maps, Payne said. The database will be complete by 2006, he said.

About 2,000 CDs have been pressed since September 1993, when the Digital Gazetteer first became available, and about 10% have gone to private industry, said John Shanton, a spokesman at the Earth Science Information Center. The remainder of the CDs have gone to federal agencies such as the Federal Emergency Medical Agency, historical researchers, libraries, genealo-

Where to find it

The place-names database can be found at <http://www-nmd.usgs.gov/www/gnis>. It is also available as a CD-ROM called the Digital Gazetteer of the U.S. and sells for \$57 at any of the 10 Earth Science Information Centers.



What's in a name?

The U.S. Board of Geographic Names maintains the National Geographic Names Database, which tracks the name of every geographic entity in the U.S., including these rather unique ones:

- Los Angeles, Texas
- Dallas, S.D.
- Atlanta, Calif.
- Toledo, Wash.
- Santa Fe, Ill.
- Spokane, La.
- Des Moines, N.M.
- Beverly Hills, Va.
- Syracuse, Neb.
- Trenton, Maine
- Akron, Ala.
- Boston, Ohio
- Atlantic City, Wyo.
- Buffalo, Mont.
- Denver, Tenn.
- Miami, Ariz.
- Reno, Minn.
- Philadelphia, Ark.
- Austin, Utah

gists, mapmakers and search-and-rescue organizations.

Until last September, the National Geographic Names Database was housed on an Amdahl Corp. mainframe. It was moved to Oracle in a client/server environment mainly to offer Internet access, which was impossible on the mainframe, staffer Rebecca Bish said.

One copy of the database has been

designated as the working copy. Data is added by three on-site workers and a cadre of contractors who mail in floppy disks full of data from across the country.

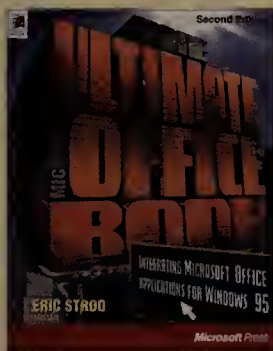
A second copy, which serves Internet visitors, is updated once a week through a snapshot, a standard Oracle replication feature. The two copies of the database are separated so Internet calls won't bog down in-house performance, Bish said.

Microsoft Office 95 reference books aplenty

Working in Microsoft Office (by Ron Mansfield; Osborne/McGraw-Hill, Berkeley, Calif.; 1,000 pages; paperback; \$34.95) is a handy guide for end users. It provides an overview of all the components of Microsoft Corp.'s Office for

Windows 95 and then delves in to detail about each one. It explains how to switch among applications and how to use the Clipboard to share information, templates and wizards.

There are chapters on Word, Access, Excel and other applications included in the Office Professional suite. The book is easy to read, although its sheer volume can make it a



bit unwieldy. Still, it's a worthwhile guide. Then there are three separate Office books from Microsoft Press in Redmond, Wash. The first, *Running Microsoft Office for Windows 95* (by Michael Halvorson and Michael J. Young; 1,049 pages; paperback; \$29.95), is the most in-depth reference of the three. Like the book above, it first of-

back cover.

And, like the book above, it assumes nothing and is easy to follow — but for some reason, this book's typeface was harder on the eyes. It's probably just my eyes.

The second book, *Microsoft Office 95 Integration Step by Step* (by Catapult, Inc., a training company; 352 pages; paperback; \$19.95), is a

PowerCerv to let users customize software

By Julia King

Users of client/server software have come to begrudgingly accept that off-the-shelf packages typically fulfill 80% or less of their business requirements.

The other 20% are usually satisfied with more specialized programs or costly customized systems. Another route some companies take is to change their internal business processes to conform to packaged systems.

Adapt it

PowerCerv Corp. is looking to change the 80/20 rule. This week, the Tampa, Fla., software company will announce a new object extensible architecture (OEA) that it is incorporating in-

to its suite of packaged client/server applications, known as Adaptations. OEA enables Adaptations users to rapidly customize the software to meet their individual needs.

"Rather than coming in with a fixed set of applications with deep functionality, what PowerCerv does is give you a tool kit to let you build what's best for you," said Marc Lynn, information systems director at Automated Packaging Systems, Inc., a \$115 million manufacturer in Streetsboro, Ohio. The company recently purchased Adaptations manufacturing and order management software. Other packages in the suite include financial and help desk applications.

PowerCerv, page 46



Users spurn Windows/Unix porting tools

By Frank Hayes

Porting Windows applications to Unix seems like it should be a corporate developer's dream. But customers aren't buying it.

Vendors such as Bristol Technology, Inc., Mainsoft Corp. and Willows Software, Inc. offer tool sets that let developers easily port Windows C++ applications to other platforms, including Unix and Digital Equipment Corp.'s OpenVMS.

And in recent weeks, Bristol in Ridgefield, Conn., and Mainsoft in Sunnyvale, Calif., have announced versions that will even support Microsoft Corp.'s OLE 2.0, an object system for letting applications communicate with one another (see chart).

Not so thrilled

So why aren't corporate developers wild about Windows-on-Unix?

"These tools are great if you spent a lot of time developing a

program for Windows, and suddenly your management turns around two weeks before it's due to be released and says, by the way, this has got to run on Unix, too," said John Howie, a consultant who is developing financial trading applications for Reuters Analytics Group in Stamford, Conn.

But for more conventional situations in which developers would need to build for multiple platforms, a development environment designed for that task is better, Howie said.

Bristol and Mainsoft acknowledge that most of their customers are independent software vendors. But they insist that will change as corporate developers start to see the advantages of these tools.

Perhaps. But corporate developers are leery of tools that promise they can port C++ applications from Windows to Unix at the last minute.

"If you assume you can develop for Windows and then just do a

quick port at the end if you need to, there will be surprises that are going to come up," said Matt Rosen, assistant director of technical services at San Joaquin Delta College in Stockton, Calif. Developing for multiple platforms "really requires a lot of forethought," he said.

Missing pieces

Corporate client/server applications often depend heavily on third-party middleware, data-

bases and other elements that aren't part of the Windows interfaces that porting products support, Rosen said.

That means crucial elements such as messaging, object services and even fonts may be missing from an application's target platform.

"Going from Macs to Windows and Unix, there are cases where we've had to design our own services for now and just wait until there are standard services avail-

able on all the platforms we need," Rosen said.

"These tools do their job very, very well," said Howie, who has tested products from Bristol, Mainsoft and Willows. "But the last thing you want to do is write this terrific application targeted at Windows or Windows NT, in the belief you can just port it over at the very last minute by using a porting tool, and then find that you're using something that's not supported."

OLE without Windows

The following tool sets for porting Windows applications to Unix are adding OLE 2.0

Vendor	Product	Platforms supported	OLE 2.0 availability	Price
Bristol Technology Ridgefield, Conn.	Wind/U	SunOS, Solaris, HP-UX, AIX, Digital Unix, OpenVMS	Now	\$5,000 to \$9,000
Mainsoft Sunnyvale, Calif.	MainWin	SunOS, Solaris, HP-UX, AIX, Digital Unix, Irix, SCO Unix	Q2 1996	\$5,000
Willows Software Saratoga, Calif.	Twin	SunOS, Solaris, HP-UX, AIX, Digital Unix, Irix, SCO Unix, Linux, MacOS, NetWare	Late 1996	\$250 per operating system version

PowerCerv to let users customize software

CONTINUED FROM PAGE 45

All Adaptations programs are written in Powersoft Corp.'s PowerBuilder. Pricing for a system that includes manufacturing and financial software for 75 users ranges between \$200,000 and \$400,000.

PowerCerv also provides customers with an object-class library and software tool set that users can employ to modify the core applications on a case-by-case basis. Users can do their own modifications or have PowerCerv do them.

A key benefit for users under this hybrid approach is the ability to upgrade to new versions of Adaptations software without having to rewrite previous customizations, according to Bernie Borges, PowerCerv's vice president of marketing.

This is because under PowerCerv's application architecture, software objects that represent a particular business process — such as how a company accepts returned merchandise — are kept in separate "layers" from other technical objects that handle application functions such as security and workflow.

"Some application layers are owned by customers and some by PowerCerv, so when we give a customer a new version, they simply put in the new PowerCerv layers, keep their own layers and recompile. They don't make changes in a monolithic piece of source code," Borges explained.

This can shave months from the time it takes to implement a customized software system, he added.

"What they're saying is users can bend the software more to meet their process rather than bending themselves to meet the software," said Barry Wilderman, an analyst at Meta Group, Inc. in

Stamford, Conn.

This flexibility is one of the main reasons Automated Packaging Systems (APS) bought the software, according to Lynn.

APS is implementing the packages as part of an overall re-engineering of its order-to-cash process. The software is running on a Hewlett-Packard Co. Unix computer equipped with Sybase, Inc.'s System 10 relational database management system.

Under the old system, which Lynn described as "a Cobol tumor running on a minicomputer system," users had devised so many workarounds that it was impossible to differentiate between a

workaround and a true system requirement.

So Lynn set up what he called a "conference room pilot project" under which users could experiment with the Adaptations software by quickly creating and try-

ing out different modifications on a demonstration system set up in a company meeting room.

"Before, we didn't have the technology and tools to allow it to be done this way, so we forced users to prespecify," Lynn said.



Adaptation pieces

PowerCerv's object-oriented Adaptations client/server suite includes the following:

- Intergy, a suite of nine finan-

cial applications.

- Xceed, a sales force automation system.
- Response, a help desk/customer-support system.
- PowerMan, an interactive manufacturing resource planning system.
- PowerCom, a customer-order-management system.

New Products

Softlab, Inc. has introduced Maestro II 2.2, a maintenance and redevelopment environment.

According to the Atlanta company, Maestro II 2.2 is a client/server-based product that provides an infrastructure for all phases of the maintenance and redevelopment of legacy PL/I language applications. It includes application navigation tools and enhanced Cobol scanning features.

Maestro II 2.2 costs \$10,000 per workstation.

► **Softlab**
(770) 668-8811

Platinum Technology, Inc. has introduced Final Exam Internet Test and Final Exam Internet Load Test, two tools for testing World Wide Web applications.

According to the Oakbrook Terrace, Ill., company, the two

tools test Web applications before deployment and predict response time on clients and thresholds on servers. They also assist in planning the best hardware configuration for anticipated network Hypertext Markup Language (HTML) traffic.

Final Exam Internet Test supports HTML objects and provides a capture/replay process to ensure thorough testing of applications that use Web browsers.

Final Exam Internet Load Test is a systems tool that analyzes the performance of clients and servers in Internet applications in response to various Web-use load levels.

The Final Exam Internet tools are available in a bundled package for \$2,995. Separately, Final Exam Internet Test costs \$995 for a developer's license and \$295 for a tester's license.

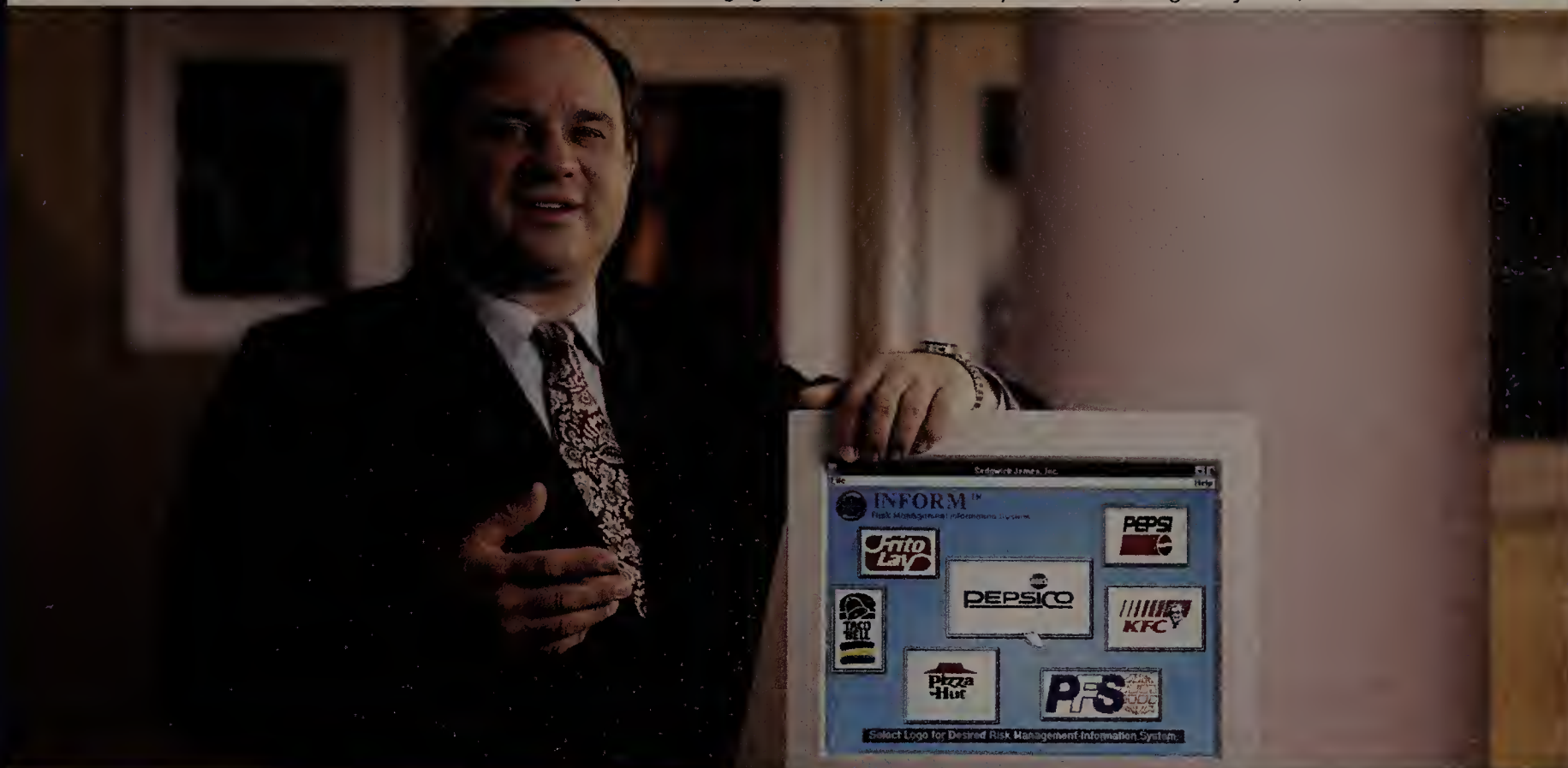
Demo versions are available at <http://www.platinum.com>.

► **Platinum Technology**
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Software

Symantec sets sights on File Explorer

By Stuart J. Johnston

Symantec Corp. is preparing a replacement for Windows NT's file manager utility that will give users of Windows NT 3.51 a file management tool that looks very similar to Windows 95's File Explorer.

Early users say the product has the intuitive look and feel that Microsoft Corp.'s Windows 95 File Explorer has. But the Norton File Manager Preview Edition for Windows NT also provides several im-

portant functions that File Explorer doesn't. Among these features are the following:

- Network file management lets users browse network drives and perform file operations without having to map selected drives.
- File transfer protocol (FTP) sites appear on the file and subdirectory tree just as if they were subdirectories on the user's drive. Files can be retrieved from the network simply by dragging and dropping them.
- File compression and decompression can be done on the fly by dragging and dropping files on compressed or decompressed directories.
- Users can easily apply the Internet uuencode and uudecode compression and encrypt or decrypt files.

"I have about a gigabyte of [compressed] files, so being able to just click on [a file to decompress it] without having to open a

separate viewer is really valuable," said Jeffrey Lathrop, an independent programmer and consultant in the Denver area.

Even after Windows NT 4.0 ships this summer, "I still have a use" for Norton File Manager for Windows NT because of the compression/decompression and the uuencode and uudecode functions built in to it, said Bob Parsons, a supervisor at the Park County Weed and Pest Control department in Powell, Wyo.

"I like the flexibility, the ease of use and especially the FTP functions," said Sean Martin, a workstation technical support analyst at the Information Systems & Services division of Texas Instruments, Inc. in Plano, Texas. The file compression and decompression features are "very fast," Martin said.

The Norton File Manager Preview Edition for Windows NT can be downloaded from Symantec's on-line locations, including the company's FTP site on the Internet (ftp.symantec.com).

But the Preview Edition will stop working March 31, after which Symantec will sell the final release package. Pricing hasn't been announced.

The Norton File Manager Preview Edition for Windows NT requires Windows NT 3.51 that runs on an Intel Corp. i486-based PC or higher with 12M bytes of RAM and 64M bytes of free hard-disk space.

File management

DE-Light shadowed by security concerns

Software connects 'net users to DCE

By Craig Stedman
PALM HARBOR, FLA.

Transarc Corp. late this month will ship Java-based software that connects Internet users to Distributed Computing Environment (DCE) networks that run its Encina transaction manager.

The rub is that World Wide Web-based PCs that use the DE-Light software won't be protected by the Kerberos security mechanisms in the Open Software Foundation's DCE technology.

Risky business

Transarc initially is relying on a proprietary technique for scrambling user passwords, but determined hackers may be able to break the code, company officials acknowledged.

On the other hand, neither DCE nor Encina code is needed at clients, which reduces costs and installation headaches.

Web bound

Vendors besides Transarc that are developing products for connecting Web users to DCE networks

Vendor/Technology	Key features	Availability
Gradient Technologies Web-enabled DCE client	Full DCE code that runs on Web browsers	Q2 1996
Open Horizon Connection for Java	Java applet with optional DCE client support	May
Open Software Foundation DCE-Web	Integrated Web/DCE server plus Web-to-DCE gateways	Late summer

Another bright spot

Anon-Internet version of Transarc's DE-Light was also introduced for connecting Windows 3.1 clients to DCE networks. That version is available now; an early release of the Java-based product is scheduled to ship March 31.

DE-Light was introduced at Decorum '96, a Transarc-sponsored DCE conference that was held here late last month.

The software runs on a Web server and downloads applets written in Java, Sun Microsystems, Inc.'s Internet programming language, to Java-enabled Web browsers.

The applets communicate with DCE and Encina services through a gateway included with DE-Light.

Rather than put DCE and Encina code, which costs about \$250, at every Web client tied into the network, DE-Light customers

would pay a \$2,000 base fee plus \$100 for each active connection to the gateway.

Companies could provide access to a lot of users and pay for a smaller number of live connections, Transarc officials said.

Ron Hoyer, an information technology analyst at Deere & Co. in Moline, Ill., said DE-Light looks attractive from a cost and flexibility standpoint.

But the security issue "is definitely a factor," he said. "It's like Fort Knox from the Web server back into the [DCE network], but it's still kind of open out to the client."

A Decorum attendee from a major financial services company that is considering using DE-Light to provide Web-to-DCE access for its customers said there are still "a couple of things that I'm looking for" from a security perspective. "But they're getting close," said the user, who requested anonymity.

Can't please everyone

Pat Stephenson, one of the lead developers for DE-Light at Transarc, said the Pittsburgh-based IBM subsidiary left DCE security out of the product in order to chop it down to the desired size.

"We wanted to keep the client small, and Kerberos isn't small," Stephenson said. "Some people are happy" with the proprietary password scrambling, and "some people are not," he conceded. He said Transarc hopes to add support for Netscape Communications Corp.'s more robust Secure Sockets Layer encryption technology to DE-Light later this year.

Besides its potential for cutting costs at the client level, DE-Light removes the need for system administrators to set up Web-based users as members of a DCE network.

Fidelity Investments, Inc., a mutual funds company in Boston, said it expects to use DE-Light but declined to comment further about its Web-to-DCE plans.

Netscape/Aurum pact may boost Web potential

By Mindy Blodgett

The belief that the Internet will one day be an effective corporate sales and marketing tool got a boost recently with an agreement between Aurum Software, Inc. and Netscape Communications Corp.

Aurum, which provides sales force automation software, announced it will integrate its SalesTrak and WebTrak software with Netscape's Navigator client software.

Improved database

The Aurum/Netscape match will create a more efficient relational database that can be used to catalog customers and follow leads that are generated by hits to corporate World Wide Web home

pages, the vendors said.

Analysts agreed.

"This strategic alliance will be a big boost to both of these businesses and will [give] corporate users the ability to more effectively trace sales leads," said Judith Hodges, an analyst at International Data Corp. in Framingham, Mass.

Fateesh Lele, senior vice president and chief information officer at Telogy, Inc., an electrical test equipment manufacturer in Menlo Park, Calif., said his goal is to use the Web as a sales channel.

He said he uses WebTrak, which costs about \$10,000. He said he is working with Aurum to

improve the product's effectiveness. "We want to allow the customer to be able to find what they need on our home page and make the purchase with a credit card," Lele said.

"We want you to be able to come through the Web and purchase something in minutes — when it might take a salesperson six months to do the sale," Lele said.

Ken Dulaney, an analyst at Gartner Group, Inc. in San Jose, Calif., said the Web is currently "more of an advertising vehicle."

"Once you have companies naming a vice president of Web sales, and [once] software such as WebTrak truly offers you a sales channel and not just a sales tool, then you will really have something," Dulaney said.

Netscape and Aurum hope to devise products to make it easier for Web users to:

- Manage direct mail campaigns
- Manage Web marketing encyclopedias
- Improve lead generation management
- Support customer call entry, call status and product feedback

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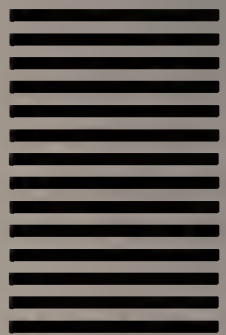
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Software

New Products

Chicago-Soft Ltd. has introduced its latest product, WinMiser Pro, a Windows memory utility.

WinMiser Pro is a memory efficiency and analysis tool designed for Windows 3.x users.

According to the Hanover, N.H., compa-

ny, the product protects Windows DOS memory, analyzes insufficient memory errors, recovers memory lost to programs leaking memory and automatically releases unused memory.

WinMiser Pro isn't a RAM-doubling or RAM-tripling product. It was designed as an analysis and recovery tool.

WinMiser Pro costs \$59.

► **Chicago-Soft**
(603) 643-3014

Media Lab, Inc. has introduced PhotoCaster, supporting software for the company's multimedia development program, Macromedia Director.

According to the Louisville, Colo., company, PhotoCaster lets users import Adobe Systems, Inc. Photoshop 3.0 files directly into a Director cast window and place different layers of Photoshop files into separate cast members. Users can then anti-alias the files while maintaining regis-

tration points and index them to a superpalette.

PhotoCaster costs \$99. A demonstration version is available at <http://www.medialab.com/software/>.

► **Media Lab**
(303) 499-5411

Fujitsu Systems Business of America, Inc. has introduced LiveHelp, help desk remote control software.

According to the Santa Clara, Calif., company, LiveHelp gives help desk personnel remote control and screen-sharing capabilities for real-time, on-line support and training.

LiveHelp was designed to let help desks teach users, guide them to answers and cut down on repetitious help calls.

Remote users can access LiveHelp through LANs, wide-area networks and modem connectivity. The product includes drawing tools and whiteboard functions. It operates on Microsoft Corp.'s Windows 3.1 and Windows 95.

Pricing for LiveHelp clients starts at \$175 for a 10-user pack.

► **Fujitsu Systems Business of America**
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Microsoft Office

CONTINUED FROM PAGE 45

perback; \$29.95) focuses entirely on how to exchange data, charts and other kinds of information among the Office applications. It explains how to import files, link objects and copy files.

The chapters are logically broken down by application, so the reader can easily find information about using spreadsheet data in Word or writing a report using a database, for example. A floppy disk in the back of the book includes lessons and exercises to reinforce learning.

Finally, *The Ultimate Office Book* (by Eric Stroo; 341 pages; paperback; \$24.95) is for the more advanced user. It assumes the reader already knows the basics of Windows 95 and the individual Office applications. It doesn't explain how to use dialog boxes or how to open files, for example. It does talk about the most effective ways to use the applications separately and together, and it explains the more advanced concepts such as formatting objects.

And the book's screen shots and other visual helpers are in full-blown, living color, making it that much easier to follow the bouncing cursor.

—Johanna Ambrosio

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The Enterprise Network

Reeling from remote

By Mindy Blodgett

Training users on a new remote access implementation took more time and energy than James Moore had originally anticipated.

"In the beginning, I had no life," said Moore, a senior project manager at a Bank of America unit in Phoenix. "I took in just a massive amount of questions every day. My voice mail can take up to 52 messages, and it would get full every single day."

The frenetic pace of providing ongoing support and ad-hoc training to puzzled users has slowed down for him now that 30 mobile and remote workers and about 160 branch office users are up to speed.

What's hiding

Moore's time-consuming experience with a remote access rollout is typical and highlights hidden costs such as support, according to industry observers (see chart).

While remote access installations tend to focus on the costs of hardware and software that is used in the field and to connect back to the central data stores, these costs often do not present the whole picture.

Costs hidden in remote ac-

cess projects include support, training and configuration. One study by Infonetics Research, Inc. estimated that those factors account for as much as 35% of the true cost of remote access.

Despite the pitfalls of remote access projects, users say they are worth it. The projects save time and increase productivity.

"We can do much more now in a much shorter period of time," said Steve Wittmer, a network manager at Centex Construction Group, Inc. in Dallas.

Centex uses remote access technology to link its main office to regional offices and a constantly changing number of construction sites. Wittmer said users relied on faxing and overnight mail before they gained remote access technology.

Improving communications, particularly eliminating the need to exchange paper, was cited by users as a major advantage of remote access. Users also said remote access brings users closer to the customer, which improves productivity.

Wittmer said the biggest surprises of his company's remote access installation were the training issues and the problem of working with a disparate range of hardware.

Typical installations cost an



average of \$10,000 per user according to the Infonetics study. And before the installation is even under way, companies must focus on training and support issues, industry observers say.

"The problem is that 95% of mobile workers do configurations and installations themselves and then spend an average of five to six hours a month fussing with the technology, trying to get it to work rather

than doing their jobs," said Michael Howard, an analyst at Infonetics in San Jose, Calif. "This takes away from the reasons the company has turned to remote access — to be closer to the customers and to make their jobs more efficient."

Howard said companies should spend more time and money on their initial training programs and on beefing up the remote access support skills of the central IS staffs.

Tripped up

Unexpected costs are an issue for Dave Turner, networking marketing manager at Cessna Aircraft Co. in Wichita, Kan. He said training and hardware and software enhancements are the kinds of costs his company has stumbled over as it

Route of telecommuting

Some 55 million U.S. workers will telecommute or work remotely by the year 2000, according to John Girard, an analyst at Gartner Group, Inc. in Stamford, Conn.

starts a massive remote access implementation.

Cessna is outfitting field service workers who diagnose aircraft repairs and globetrotting sales representatives with IBM laptops.

The company is conducting a pilot program that has the sales force using the laptops and remote connectivity hardware and software from SBE, Inc. in San Ramon, Calif.

Turner said users should definitely focus as many resources as possible on training, right from the beginning. And, he said, "remote connectivity is a fairly straightforward issue. But, depending on the users in the field, their training, the support they get and the technology you buy, it can be a major success or failure."

Getting away from it all

Total 1995 remote access costs for telecommuters, mobile workers and remote offices was \$4.79M

Line costs for remote connections

Acquisition costs

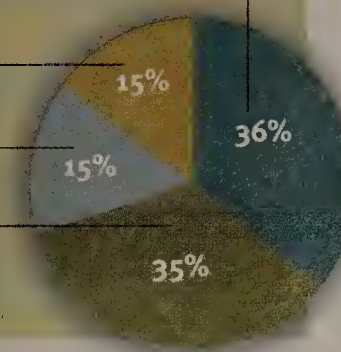
Central support staff and training

Hidden user costs*

*Includes problem solving and configuration costs

Base: 160 companies; Does not equal 100% due to rounding.

Source: Infonetics Research, Inc., San Jose, Calif.



What's on tap?

Remote access technology moves so rapidly that keeping up with it can be daunting. Here are some of the latest advances:

- Remote access leader Shiva Corp. in Burlington, Mass., has added Tariff Management to its entire product line (see story, page 56). The company aims to ease management of Integrated Services Digital Network lines for corporate users.
- Software vendors are including Internet access capabilities in their

remote access offerings. For instance, Traveling Software, Inc. added remote Internet access to the latest upgrade of its LapLink point-to-point remote control product.

- More notebooks with cellular-ready modems are on the way, as well as modems that offer wired and wireless connectivity features.
- Users also are waiting for more routers that support frame relay, an increasingly popular technology.

—Mindy Blodgett

Flipping the remote access switch

A new standard could save remote access users money. The Bandwidth Allocation Control Protocol (BACP), drafted by eight vendors, is aimed at saving users airtime with on-and-off bandwidth capabilities.

Remote users currently access corporate networks via Integrated Services Digital Network (ISDN) or dial up to public networks. The new protocol would let devices combine the two 64K bit/sec. B channels on an ISDN line to form a

128K bit/sec. connection.

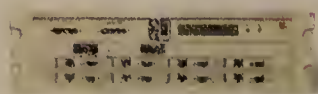
BACP, which is being considered by the Internet Engineering Task Force, would add or drop dial-up and ISDN lines as bandwidth needs change. Unneeded channels would go unused and save the user money. Microsoft Corp., Cisco Systems, Inc., Bay Networks, Inc., 3Com Corp., U.S. Robotics, Inc. and Xylogics, Inc. are leading the effort.

Products that support BACP are expected in the next few months.

—Mindy Blodgett



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The Information Management Company

Memotec CX900 will add links to frame chain

By Bob Wallace

Memotec Communications, Inc. will announce at Network/Interop '96 in early April a remote office product that lets information systems managers save big by running voice, legacy data fax and LAN traffic over one frame-relay link.

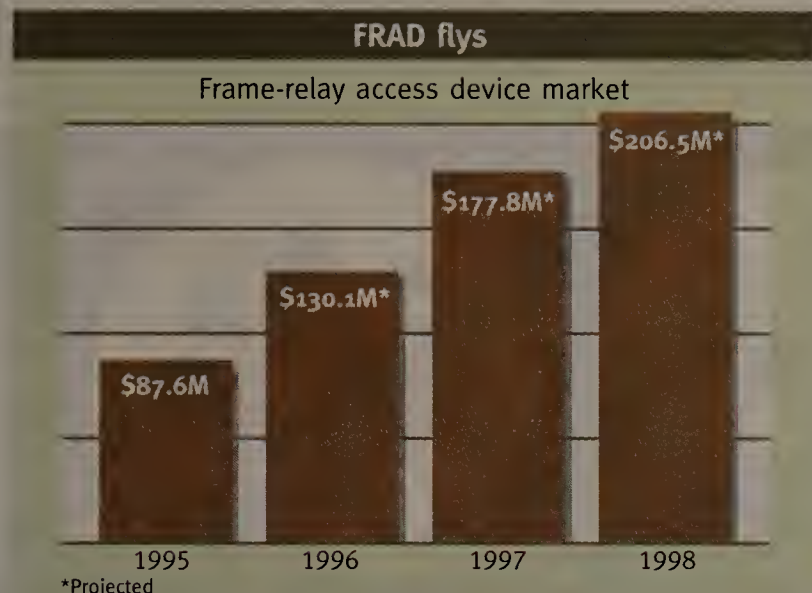
The planned six-slot Memotec CX900 can house modules that support voice over frame relay. It also has a wealth of wide-area network backup link options. These features differentiate the frame-relay access device (FRAD) from other recently announced units, said sources who requested anonymity.

This type of device "can reduce the cost of network operation and ownership by up to 80% for companies with multiple networks, while significantly simplifying network administration," said Christine Heckart, an analyst at TeleChoice, Inc. in Verona, N.J. Heckart said users can reap cost savings in equipment, access lines, wide-area lines and network administration.

More options

One company that already runs data and fax over a single frame-relay network is interested in adding voice to that mix.

"We're looking at the Memotec product, and we're pretty excited, though we'll be looking for them to price the box at about \$1,500 to \$2,000 each," said Phil Marzullo, vice president and chief information officer at REN Corp. in Nashville. Pricing was not available, but Marzullo said he had spoken with Memotec, and "it looks like they're going to hit that ballpark,



Source: Vertical Systems Group, Dedham, Mass.

which is important for us because we have lots of really small sites."

REN installed a frame-relay network about two years ago to support messaging and some LAN traffic. The network links kidney dialysis sites to the company's headquarters. "We love frame relay and expect to have over 100 sites on-line in two months," Marzullo said.

The CX900 can support Ethernet and Token Ring LANs and any combination of IBM SNA and older data protocols, said sources who requested anonymity.

And because the WAN data line is cost-justified for data traffic alone, voice traffic generated at the remote site rides the frame-relay link for free.

The CX900 can support a frame-relay link that runs at up to T1 speed (1.544M bit/sec.).

For linking LANs, the CX900 supports transparent bridging, Source Routing and Source Route Transparent, both schemes for

linking Token Ring networks, Internet Protocol, Novell, Inc.'s IPX and Open Shortest Path First routing with filtering, sources said.

For IBM networking, the CX900 supports SNA and Synchronous Data Link Control (SDLC), as well as SDLC-Logical Link Control, which enables users to move from private-line data networks to frame relay, which is roughly 30% to 40% cheaper.

The CX900 comes with a built-in device that enables it to support a 56K bit/sec. backup WAN link. An optional module lets the FRAD send traffic from the remote office over a 128K bit/sec. Integrated Services Digital Network Basic Rate Interface line, if needed. The box also can support a 28.8K bit/sec. dial-up link, the sources said.

The CX900 is scheduled to ship May 31. Memotec in Montreal declined to comment on unannounced products.

server gateway or the writing of any proprietary host or server code. Rumba Mail costs \$4,100 per user for up to nine users.

Amdahl gets Bullish

Amdahl Corp. plans to sell and support the systems, network and security management suite from **Groupe Bull**. The partnership seeks to help Amdahl customers worldwide gain control of IBM-compatible host environments and distributed client/server networks through the integrated ISM/OpenMaster tools.

Novell upgrades its TCP/IP software; native support on way

By Laura DiDio

Novell, Inc. has enhanced its TCP/IP software for NetWare 4.1, simplifying management of IP-based networks and giving mobile users Internet access to the corporate network.

NetWare/IP 2.2 makes it easier for users to integrate NetWare 4.1 with TCP/IP-based networks.

Businesses can still use Novell's proprietary IPX/SPX protocol on their LAN and move to an all TCP/IP-based network "at their leisure," said Michael Simpson, a product line manager for NetWare.

Novell's latest TCP/IP software package also lets mobile users with a Serial Line Internet Protocol or Point-to-Point Protocol connection use a local Internet provider to access the corporate Novell network. This can reduce a corporation's recurring telephone line costs.

Benefits abound

Information systems managers said cost savings aren't the only advantage.

Administrators may find it easier to manage networks because they will be able to view both sides of a TCP/IP link, and users will get increased access.

"Administrators and users will all benefit by getting access to servers and data on both sides of the link using TCP/IP," said Maj. Barrie Wheeler of the Air Force Command Control Communication and Computer Agency at Scott Air Force Base in Belleville, Ill. The agency will use NetWare/IP 2.2 to build an IPX-to-TCP/IP wide-area link by using the Internet instead of a more expensive dedicated private network.

NetWare/IP 2.2 provides a dual-purpose Dynamic Host Configuration Protocol (DHCP)/Boot Server facility to boost NetWare 4.1 throughput across the wide-area network. DHCP is a server-based utility that simplifies the management of TCP/IP user addresses.

In previous versions of NetWare, network administrators manually assigned a permanent TCP/IP address to every user, which was time-consuming and unwieldy.

Now, administrators can deploy DHCP to manage a pool of available IP addresses and automati-

cally assign them to end users as needed, noted Neil MacDonald, a senior research analyst at the Gartner Group, Inc., a consultancy in Stamford, Conn.

"DHCP acts like a rental car agency: It leases the same TCP/IP address over and over for only as long as users need the connection. Businesses aren't continually adding IP addresses and overloading their servers; they leverage what they've got," MacDonald said.

Native support

MacDonald praised Novell's TCP/IP support, calling it "a good, though not pure, TCP/IP" implementation.

Pure TCP/IP won't come until the middle of next year, when Novell is expected to ship native TCP/IP support bundled into NetWare.

Native TCP/IP support won't require users to install any extra

Ipsso facto

NetWare/IP 2.2 now...

Supports DHCP/BootP for easy manageability of IP addresses

Lets Windows NT Workstation users access NT Server services via TCP/IP

Enables NetWare users to access Unix and other IP-based network printers

Improves NetWare performance over the WAN by eliminating the Service Advertising Protocol traffic and freeing bandwidth

Supports Microsoft's 32-bit Windows 95 and Windows NT Workstation TCP/IP stack

Available, free of charge, via the World Wide Web at <http://netware.novell.com>

client software, as they must do now with NetWare/IP 2.2.

NetWare/IP 2.2 software doesn't consume significant memory or network bandwidth, but it does chew up a lot of the administrator's time installing and configuring it on each user workstation, MacDonald said.

Briefs

Spectrum adds nerve

Cabletron Systems, Inc. has enhanced the alarm management capabilities of its Spectrum network management platform through a partnership with **Seagate Enterprise Management Software, Inc.** in Cupertino, Calif. Spectrum users will be able to apply Seagate EMS' NerveCenter event-correlation software and available rule sets.

Wall Data simplifies E-mail system

Wall Data, Inc. in Kirkland, Wash., has rolled out software that lets users run only one electronic-mail software package to communicate with multiple LAN-, midrange- and mainframe-based E-mail systems in the company. Rumba Mail lets users manage their E-mail from one mailbox. Previously, users had to open and close several software packages to get their E-mail because the systems couldn't communicate. The software doesn't require a mail

Shiva eyes simpler LAN setups

By Mindy Blodgett

ISDN connections for remote users often end up frustrating users and network managers alike. But Shiva Corp. last week announced server and software upgrades that promise easier setup and lower connection charges.

Shiva's LanRover/Plus 4.0 remote access server will give users the choice of Integrated Services Digital Network Basic Rate Interface (ISDN BRI) hardware modules, high-speed modems or serial cards — all in one modular platform. The inclusion of the ISDN BRI modules gives dial-in users access to two 64K bit/sec. B channels for much faster, 128K bit/sec. throughput.

Even more remote

Between now and next year, companies will increase the number of workers allowed remote access by about 30%, according to Infonetics Research.

Shiva in Bedford, Mass., also updated its Shiva operating system (ShivOS) software to include the following features:

- Tariff Management technologies, which create "virtual connections" for users on client-to-LAN environments. The technology minimizes connection costs by "spoofing" — keeping dial-in links active only when data is actually being sent or requested.

- A wizard connection that guides users through file setups, thus reducing user frustration.

- Enhanced management and security, achieved by adding Management Information Bases and support for various third-party security software packages.

For Steve Wittmer, network manager at

Centex Construction Group, Inc. in Dallas, the Tariff Management technology is particularly appealing.

"That is the main thing — to cut connection time charges," Wittmer said. "And I also like the setup configurations. You want the network connections to be as seamless

as possible to the user."

Michael Howard, an analyst at Infonetics Research, Inc. in San Jose, Calif., agreed.

"Mobile users are spending up to six hours monthly fussing with remote access. By making the client software easier to install and reducing connection costs, Shiva

is going a long way in addressing cost [issues] and frustrations for companies with remote access," he said.

The LanRover/2EPlus 4.0 with four BRI modules costs \$7,119. With two BRIs, the cost is \$2,459. The price of the ShivOS software upgrade ranges from \$275 to \$499. The products are available immediately.

Companies with similar products include Ascend Communications, Inc., Cisco Systems, Inc. and Bay Networks, Inc.



Briefs

Go without the flow

Oracle Corp.'s InterOffice, a suite of groupware modules optimized for use with the Oracle7 database, will ship without its workflow component. InterOffice, which will add document management and conferencing to Oracle's Office product suite, will offer workflow functionality by the end of the year, company officials said.

Attachmate links TCP/IP to SNA

Attachmate Corp. in Seattle jumped in the TCP/IP-to-SNA server market with a Windows NT-based product that supports up to 2,000 active users. The Emissary TCP Server software is available now. Pricing starts at \$11,500 for a 250-user license.

New Products

Latitude Communications, Inc. has introduced MeetingPlace conference server 2.0.

According to the Santa Clara, Calif., company, MeetingPlace conference server is an audioconferencing system that leverages a user's internal voice and data network to

streamline the process of holding audio-conferences. The product can remind all meeting attendees about meeting times by fax or electronic mail. With telephony technology, users can request meeting slides and handouts.

The product also lets users add comments to be played during the meeting and includes breakout session and hallway chatter features. It has security features to lock out and screen meeting attendees.

Pricing for MeetingPlace conference server starts at \$39,995 for an eight-port entry-level system.

► **Latitude Communications**
(408) 988-7200

Luminous Corp. has announced Adobe Virtual Network 1.0 for Macintosh.

According to the Seattle company, the product is a remote control delivery tool that lets dispersed graphic arts print pro-

duction providers and clients electronically exchange documents over telephone, Integrated Services Digital Network lines, Apple Computer, Inc.'s AppleTalk networks and the Internet. It consists of a host module at the service provider site and client modules at the customer sites to link client sites to a provider's prepress production system and enter jobs directly into the host's production workflow.

Adobe Virtual Network 1.0 lets the client module transfer files to the host through a wide-area network or serial connection, send and receive files, collect job ticket data and collect job files from the network.

Pricing for Adobe Virtual Network 1.0 for Macintosh starts at \$1,695 for up to 10 customized client sites.

► **Luminous**
(206) 689-6700

Isotro Network Management, Inc. has introduced NetID 2.0, a tool for managing domain names and Internet Protocol addresses in enterprise networks.

According to the Ottawa company, NetID 2.0 uses subnetwork modeling to allow administrators to map addressing and conventions, do custom importing and populate NetID with data from virtually any source. The product also features templates to reduce data entry for similar devices and ensure consistent data.

NetID 2.0 is available in enterprise and single-user versions. The enterprise edition lets multiple users access a common database using access software provided by a database vendor. Pricing starts at \$9,500 and includes a three-user license. The single-user version has an integrated database and starts at \$1,495.

► **Isotro Network Management**
(613) 722-1921

Denmac Systems, Inc. has introduced AlertPage Enterprise, an advanced monitoring and alarm notification product for Novell, Inc. NetWare and Microsoft Corp. Windows NT mixed server environments.

According to the Northbrook, Ill., company, AlertPage Enterprise provides constant, unattended surveillance of NetWare and NT servers. It has a monitor that measures uptime, downtime and service availability of all devices. AlertPage can report NetWare Directory Services error messages and can forward event log messages from NT servers. It also has an intelligent filter that teaches the product the normal alarm behavior of the network and provides immediate notification of critical problems.

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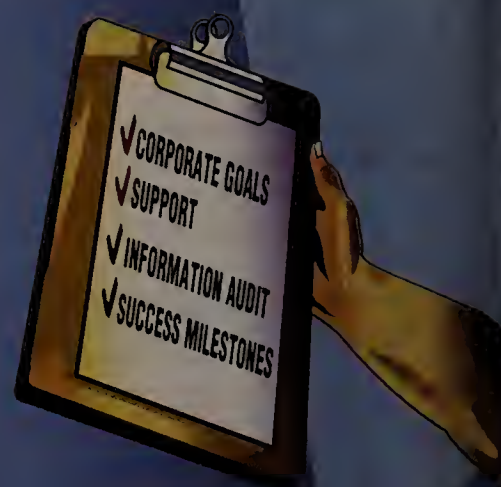


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Reporter's Notebook: In the field at Netscape's first user show, 64

The Internet

Users go on bandwidth patrol

WebTrack tool helps eliminate need to upgrade 'net links, disk space

By Patrick Dryden

Cruising the World Wide Web is cool, unless you're a network manager.

As Internet involvement grows, managers must track usage and cope with users' hunger for bandwidth and server space to hoard the goodies they fetch from unregulated realms.

Instead of automatically spending money to boost the number or speed of Internet links and add a few more gigabytes of disk space, some managers demand justification for such enhancements. They confront Web mania by detecting and limiting frivolous activity.

They set limits for good reason: At least 20% of employee activity on the Web involves undesirable or irrelevant sites, according to three large organizations, which asked to remain anonymous because they were embarrassed to find Web abuse in their firms.

Administrators at these companies are evaluating WebTrack, monitoring and filtering software from Webster Network Strategies in Naples, Fla. WebTrack installs on a proxy server behind the network's firewall. It logs all inquiries and can refuse requests for sites deemed inappropriate according to the organization's Internet usage policy.

Marathon Oil Co. adopted WebTrack

to help ensure compliance with its Internet usage policy. About 600 of the company's 7,500 end users have Web authorization. Marathon combined the WebTrack filter with another application that regulates user access to the Houston company's Internet gateway.

Policy enforcer

"We were wide open before we took these steps, but now we've enforced our internal-to-external policy," said Willie Waters, Marathon's information technology services consultant responsible for Internet planning.

Administrators at Marathon use WebTrack to check where users venture on

the Web, Waters said. He said he would like to see user information presented better in the on-line viewer to help run quick checks instead of full reports.

WebTrack successfully blocked attempts to reach restricted sites, even when users attempted to follow links from a legitimate site, Waters said. But in the cat-and-mouse game of security, no tool is foolproof. Waters had to request a fix to plug a gap that users found in WebTrack's defenses.

Marathon warned users it would screen usage. But some evaluators apply the tool surreptitiously, according to WebTrack product manager Richard Viets, even though the vendor recom-

Time clock

Number of Web hits made during an 8 a.m. to 6 p.m. work day



Source: Webster Network Strategies, Naples, Fla.

Base: 381 users at an anonymous manufacturer

Wasting away again in Webville

The following shows the hits made in one day to non-work-related Web sites

Uncategorized personal page	16,939
Sex	16,473
On-line sales	10,333
Sports	6,657
Entertainment	4,182
Dotted decimal domains (e.g., 198.68.36.46/adultsrus)	2,245
Job search	1,583
Gross or indecent	1,291
Personal pages	1,062
Fluff sites	466
Gambling	322
Nonmainstream publications	315
Drugs	222
Lifestyle	113
Games	104
Humor	48
Criminal skills	1

Base: 381 users at an anonymous manufacturer

Source: Webster Network Strategies, Naples, Fla.

mends alerting users before surveillance begins. The tool can determine who did the most Web browsing and the most-visited uniform resource locators (URL).

One utility company used WebTrack to block access to URLs on the control list, which Webster Network Strategies updates weekly. When the utility found that 20% of its bandwidth was being wasted, it put off upgrading its T1 connection to the Internet. A Fortune 500 high-technology manufacturer applied WebTrack to recover disk space. According to one administrator, users filled nearly 6G bytes of server storage with Internet files unrelated to their work.

VRML promises 3-D magic for the Internet

Commentary

Mitch Wagner

Maybe you don't hear about it much because the name is so awkward: "VRML." How do you pronounce that? "Virmul?" It sounds like the name of a villain in a *Mighty Morphin Power Rangers* episode.

But VRML, or Virtual Reality Modeling Language, is the Internet's hottest new technology for business.

VRML is a language used to describe three-dimensional objects. Images built using VRML can be turned around and examined from all sides, and users can "virtually" move closer to them or farther away.

For business, it's a way to create more compelling World Wide Web sites.

Using VRML, businesses can build a

mock-up of a building and allow users to examine it from all angles and move from room to room. They can also build models of anything using VRML — a car, furniture or complex equipment. One person on the Internet even built a model of a zebra's head (<http://www.tcp.ca/gsb/VRML/models/Zebra5.wrl>).

Serious fun

Fiddling with VRML is lots of fun. But VRML is serious business, too. Representing information in three dimensions makes it easy to understand. Users can view insurance information, for example, with conventional Internet technology, but they might find it easier to move through a simulation of a building and stop at offices marked "health benefits" and "life insurance."

Using VRML, an engineer can download designs for a complicated jet engine part, or a car mechanic can download in-

structions and 3-D diagrams for a new procedure.

There are also customer service opportunities: Remember how hard it was the last time you tried to assemble, say, a futon with the instructions that came in the package? Easy-to-use 3-D diagrams

could help make that furniture much easier to assemble, and companies that incorporate those diagrams may sell more futons.

People will stick around longer for an

enjoyable and easy-to-use presentation than they will for a stodgy one, and VRML is eminently enjoyable. More than that: It's magical. And magic is what the Internet is all about.

VRML also has a business model for success behind it. The technology



doesn't require much in the way of computing resources to run. A VRML document can fit in less than 1M byte of space, which means it can be gracefully transported over the Internet. True, VRML runs a little slowly on today's desktop systems, but that won't be so in a year. And the software is cheap or free from vendors such as Netscape.

Silicon Graphics, Apple, Microsoft and dozens of other companies also support the basic VRML standard. The SGI/Netscape/Apple group is working on a set of extensions to VRML that is different from Microsoft's, but this seems like a standards disagreement that will sort itself out because of the group's support for the basic platform. In the meantime, with that kind of vendor support behind it, VRML is jet-propelled for success.

To learn more about VRML, visit the VRML Repository at <http://sdsc.edu/vrml/>.

Wagner is *Computerworld's* senior editor, Internet technologies. He can be reached at mitch_wagner@cw.com.

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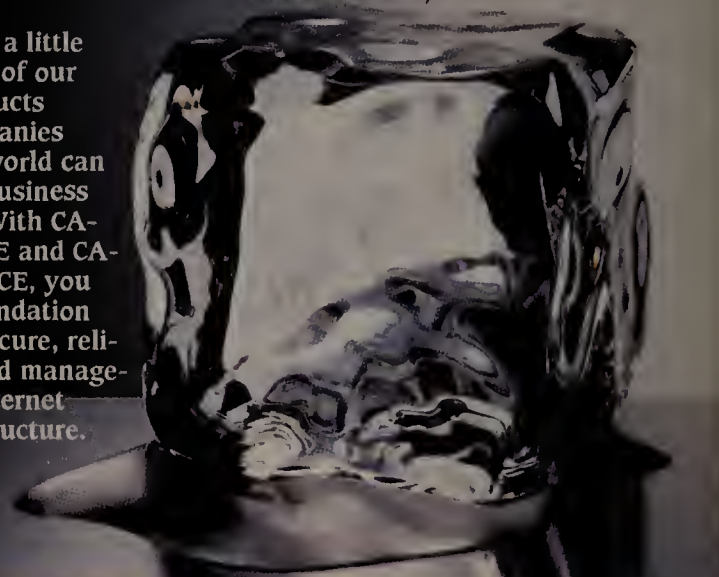
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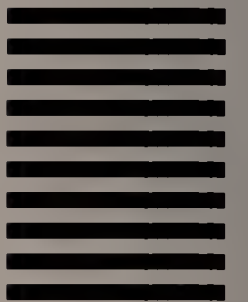
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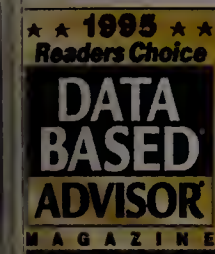
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Microsoft provides rapid 'net deployment ability

By Chris DeVoney

Microsoft Corp.'s Internet Information Server (IIS) delivers the tools to rapidly deploy an effective Internet or intranet site. But it offers little in the area of commerce-oriented transactions for the likes of retail or banking applications, primarily because of the security system it uses.

An add-on to Windows NT Advanced Server, IIS transforms the server into a World Wide Web site, a file transfer protocol and a gopher site to search and retrieve files from other participating servers.

The Web server grabs the lion's share of attention in the initial release. IIS rapidly dispenses text and graphics-intensive Web pages that use the popular Hypertext Markup Language and keeps the data flowing at a pace well above its competitors. Forms or pages that trigger responses can be written using either the industry-standard Common Gateway Interface or Perl applications language.

IIS sports the Internet Server Application Program Interface (API), a Win32 API for add-ons such as the Internet Database Connection. The connection allows Web designers to access any Open Database Connectivity-compliant database, including engines such as Microsoft's SQL Server. Connected Web pages can draw and store records from the database and use SQL stored procedures or triggers.

Providing a Web connection to the corporate database gives IIS appeal as an in-house information vehicle. An intranet Web site can distribute prepared or ad hoc reports to its users over the corporate LAN with minimal information systems attention.

Standard site security is handled through NT Advanced Server's usual file access controls, which extend to all systems users. IIS can restrict which directory trees are available and can allow

or deny site access to individual users and entire sites based on their TCP/IP addresses. For struggling networks, the total bandwidth available to the site can be constrained.

For comprehensive security over communication lines, IIS employs Secure Sockets Layer (SSL) services, a public/private encryption system that uses third-party certificates. With these services, a single server can operate only with authenticated users, or it can provide separate Web directories for public and secured users.

But SSL falls short for commerce applications. IIS

doesn't handle the new Visa/MasterCard Secure Electronic Transaction (SET) standard, which is better suited to applying the bulk of the encryption effort directly to sensitive information, such as a credit-card number, than fields such as a user's name.

An intranet site can be more highly stressed than an Internet site because of the higher bandwidth demands of LANs. Typically, LANs used for intranets require from 10M bit/sec. to 100M bit/sec. of bandwidth. This is massive compared with an Internet server, which is limited by the phone line that is dialing in to it —

typically 4.5M bit/sec.

But IIS comes through fine here as well. On a 120-MHz Pentium system, we simulated a heavy departmental load of more than 50 connections per second and throughputs of 10M bit/sec.

Microsoft's Internet Information Server

A powerful tool for quick Internet/intranet site deployment in everything except commerce-oriented transactions

Installation:	A
Features:	B+
Performance:	A-
Compatibility:	B
Value:	A

Ethernet; IIS showed no signs of fatigue.

IIS received its baptism by fire as microsoft.com, the Microsoft Web site that ran until last December on a dual 90-MHz Pentium server with 64M bytes of memory and a 4G-byte disk array. In that period, the site recorded peaks of more than 50,000 hits a day.

IIS's performance is matched by its ease of setup and maintenance. The software installed with no difficulty in less than 15 minutes, far less time than most Unix-based servers.

Most configuration decisions are made easily, and maintenance chores depend heavily on already familiar applets, such as NT's User Manager. Unfortunately, the toughest Web job — updating and maintaining the server's content — is beyond IIS's capability.

IIS requires Service Pack 3 for NT Advanced Server 3.51. It is available for download at no charge or on CD-ROM — which includes the service pack — for \$99. IIS will be bundled into Windows NT 4.0, expected by June.

Compared with other server products, IIS is the easiest site package to maintain. The server's performance is exceptional.

For on-line retail purchasing or banking applications or high-security areas where firewalls are needed, better servers are available.

For other uses, IIS provides the compelling framework for Internet or intranet deployments.

DeVoney is a computer columnist in Seattle and author/editor of more than 20 books on personal computing.



Reporter's Notebook



The Internet may be chaos, but the first day of Netscape Communications Corp.'s user show last

Ontario. The utility lets users check documents in and out of the Netscape server to avoid overwriting one another's work in a groupware application.

week was more orderly than Bob Dole's sock drawer.

Demonstrations of new products came off without hitches, and barbs at rival Microsoft Corp. got appreciative laughs.

Among the new Netscape-able wares are the following:

• Mountain View, Calif.-based VeriSign, Inc. announced a special deal for Netscape users

who want to buy its Digital ID user authentication products. Users can get five Digital IDs, regularly \$670, for \$495.

• Dimension X, Inc. in San Francisco shipped The Easy Animator, a drag-and-drop tool for creating two-dimensional Java animation programs. The product is priced at \$495; a version with fewer image and sound capabilities is priced at \$250.

• A full-text search engine from Verity, Inc. in Mountain View, Calif., will be embedded in the final version of Netscape's new Enterprise Server for hosting World Wide Web applications. Also in Enterprise Server will be a version control facility from Mortice Kern Systems, Inc. in Waterloo,

In a press conference, Netscape President and CEO Jim Barksdale had a lot to say about a variety of topics, including these:

• On the notion that browsers are becoming too complicated: "You see, you point, you click. That's not hard."

• On whether Netscape's browser used on a low-cost Internet

device could steal market share from Intel Corp.-based PCs that run Windows: "Not really. That's not our goal. This [Internet] market is enormous. It isn't necessary for any one person to go beat the stew out of anyone else to make money here."

• On the reported fears of Oracle CEO Larry Ellison that Netscape wants to be the next Microsoft: "There's a tendency in this industry [to think] that you have to put somebody else down to move up. We have all the Microsofts we need."

Of course, Microsoft will no doubt return jibes at its Internet developers conference this week in the same San Francisco convention center. Stay tuned.

—Kim S. Nash

Briefs

Improving mail service

A group of Internet electronic-mail vendors joined together last week to help speed up the acceptance of standards for Internet messaging. One of the Internet Mail Consortium's (<http://www.imc.org/>) priorities, according to Clyde Johnston, president of member company Innosoft International, Inc., is to rapidly deploy the Internet Mail Access Protocol standard for remote access to Internet E-mail.

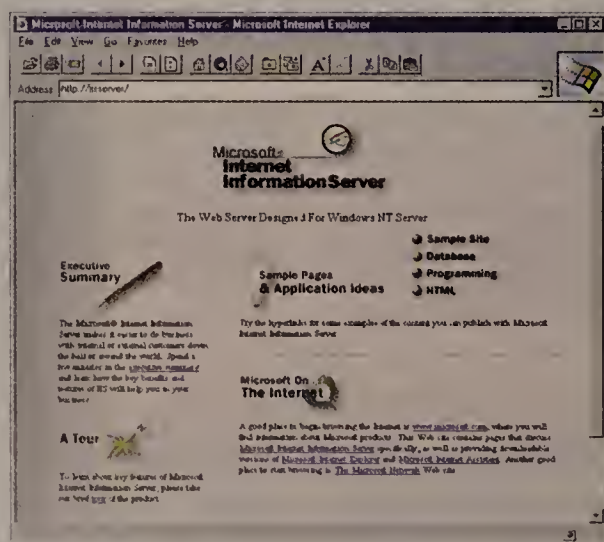
Virtual chaperone for Web users

Version 3.0 of Microsoft Corp.'s Internet Explorer Web browser will contain a feature that lets concerned managers and parents disable end-user access to violent, sexual or other Internet locales deemed objectionable. Internet Explorer

3.0 is due to start beta testing this spring. Separately, American Express Co. said it will support Microsoft's version of the Secure Electronic Transaction, or SET, protocol for credit-card payments over the Internet.

AT&T enters 'net wars

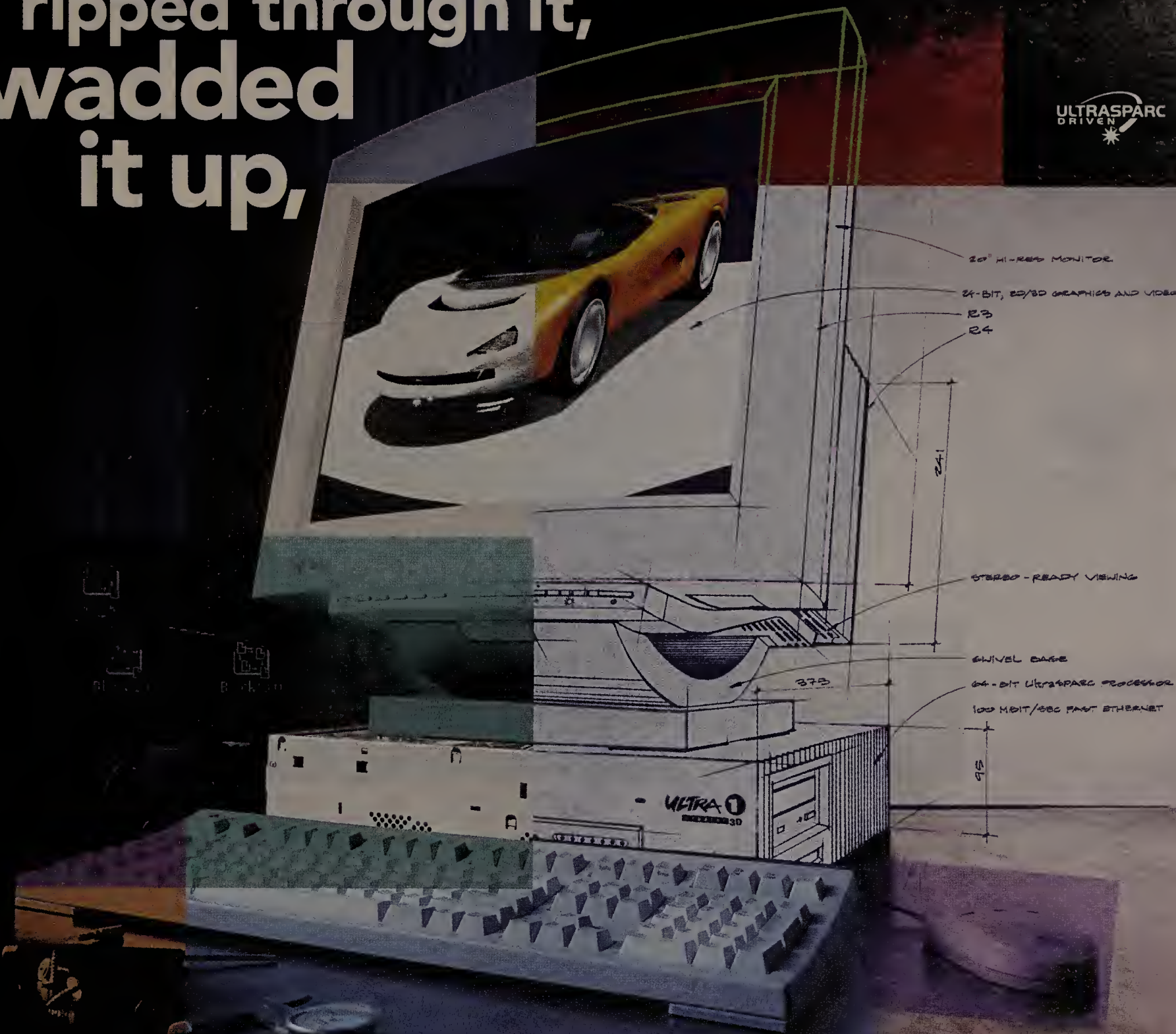
AT&T Corp. jumped into the pricing wars for dial-up Internet connectivity. The company plans to offer unlimited Internet access to its telephone customers for \$19.95 per month. Last month, CompuServe, Inc. announced its own plan for \$19.95-per-month, all-you-can-eat Internet access. Prodigy, Inc. has said it plans to offer a trial Internet service in the New York metropolitan area; it will feature dial-up Internet access for \$1 per month with no minimum.



Microsoft's Internet Information Server transforms an NT Advanced Server into a Web site, a file transfer protocol and a gopher site

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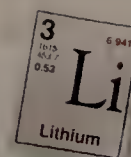
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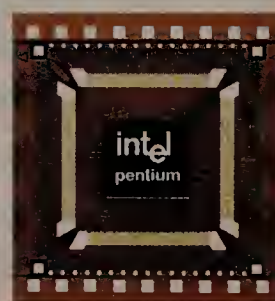


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Vendors want 'net to be true to type

By Lisa Picarille

When a company erects a billboard or mails an advertising flyer, it's easy to ensure that the material is formatted, displayed and viewed exactly as the company intended.

But on the Internet, material may not appear on a user's screen in its intended layout and format because the user's PC may not have the same fonts that were used to create the document.

This is a problem for companies and individuals that use the World Wide Web to distribute format-intensive material, such as insurance forms, expense and annual reports, company logos and trademarks.

"If you are *The New York Times* or *The Wall Street Journal*, you have a font identity," said Chris Le Tocq, an analyst at Dataquest, Inc., a market research firm in San Jose, Calif.

Several type vendors and software developers are jockeying to gain a stronghold in an emerging market: ensuring that documents on the Web are displayed exactly as the creator intended.

Typographic team

Adobe Systems, Inc., Apple Computer, Inc. and Netscape Communications Corp. last month teamed up to define and deliver typographic extensions to Hypertext Markup Language, the de facto standard for creating Web documents.

The companies want to provide an open, cross-platform technology that supports typographic standards, such as Type 1

Mirroring fonts

The following proposed HTML extensions would allow users to view a document in its original format, including fonts and layout

VENDOR	FEATURES
Adobe, Apple and Netscape (Type 1 and PostScript)	Anti-alias font technology to remove the jagged edges of all type sizes for higher screen quality Embedded, compressed fonts for faster performance over a 14.4K bit/sec. modem Progressively rendered fonts, which enable the screen to display text immediately Font subsetting that improves performance because only necessary characters are automatically downloaded
Microsoft (TrueType)	Embedded TrueType fonts to allow only the necessary fonts to be automatically downloaded; anti-alias font technology TrueType rasterizing engine for platforms such as Unix that don't currently support TrueType

fonts and PostScript documents. This new, unnamed Web font technology will be supported in Amber, the next version of Adobe's Acrobat electronic document exchange program. Amber is due this summer.

Netscape will make the Web font technology available as a plug-in extension to its Navigator browsing software.

Microsoft Corp. also announced last month that it plans a Web extension for its TrueType font technology. The extension will let designers create Web pages that users can view in their original format, even if they don't have the typefaces on their PCs.

Microsoft plans to offer a core set of free fonts to developers who support TrueType.

TrueType fonts are already incorporated in Microsoft's Windows 3.1, Windows NT and Windows 95 and Apple's Mac OS.

Microsoft also plans to include software that embeds fonts in documents and then

downloads the typefaces to users' PCs as needed. Microsoft also will offer a royalty-free, cross-platform license for its forthcoming TrueType rasterizing engine. This will allow platforms that don't support TrueType technology, such as Unix, to view TrueType fonts.

"This is a great development, and I think this is important as an option because it enables content providers to ensure documents are viewed in the same format they were created," said Dave Roller, manager of strategic planning and new technology development at AT&T Corp. in Indianapolis.

But one user said he doesn't feel constrained by the font technology already available.

"It's already so difficult to reach consumers because of restrictions in communications. It's

hard to imagine that all these companies are spending such an enormous amount of time trying to fix this font problem," said Peter House, webmaster at the Smithsonian Institution.

New Products

O2 Technology has unveiled O2Web, a software component for World Wide Web developers.

According to the Palo Alto, Calif., company, O2Web is an add-on component for O2 Technology's O2 Database System. It lets developers connect any O2 database to the Web and provides a tool set to develop and deploy a Web server based on O2.

The product was designed to turn an O2 Database System into a Web server by establishing a Web connection and translating all objects into Hypertext Markup Language format.

O2Web supports Sun Microsystems, Inc.'s SunOS and Solaris, Hewlett-Packard Co.'s HP-UX, Silicon Graphics, Inc.'s Irix, IBM's AIX and Digital Equipment Corp.'s OSF/1.

Pricing starts at \$1,500.

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Dvorak Development & Publishing Corp. has unveiled Oui 1.3, a Windows-

based off-line navigator for Internet newsgroups.

According to the Louisville, Colo., company, Oui 1.3 lets users set up tasks off-line, connect directly to gather desired information and then disconnect. Users can organize information by keywords, phrases, addresses and user names.

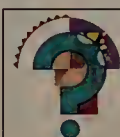
The navigator supports multiple mail attachments and is Multipurpose Internet Mail Extension-compatible.

Oui 1.3 has a built-in spell checker, a newsgroups index list and message fonting capabilities. It also can encode and decode files.

Oui 1.3 requires 4M bytes of RAM, 11M bytes of hard disk space and Windows 3.1 or later.

Pricing for Oui 1.3 starts at \$39. A free, 30-day demo version is available through Dvorak's home page at <http://www.dvorak.com>.

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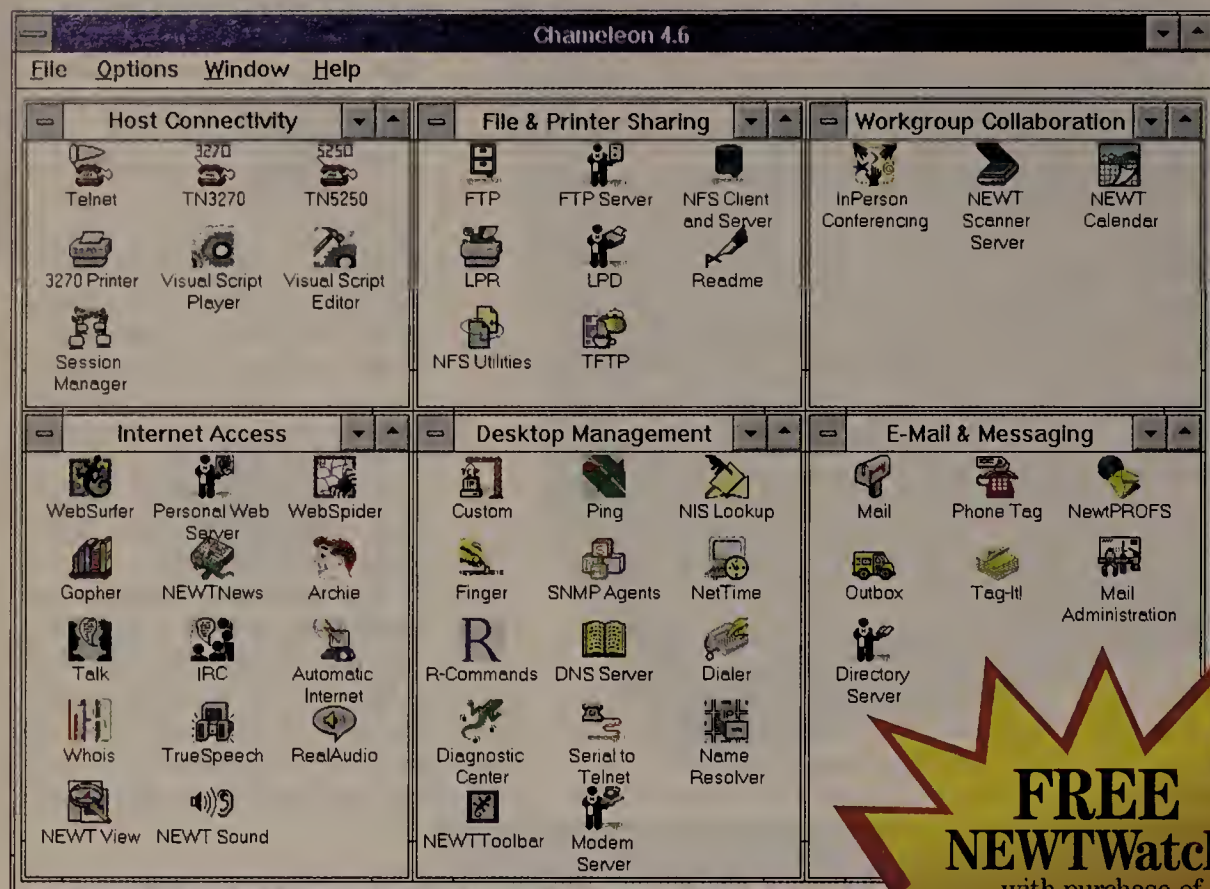


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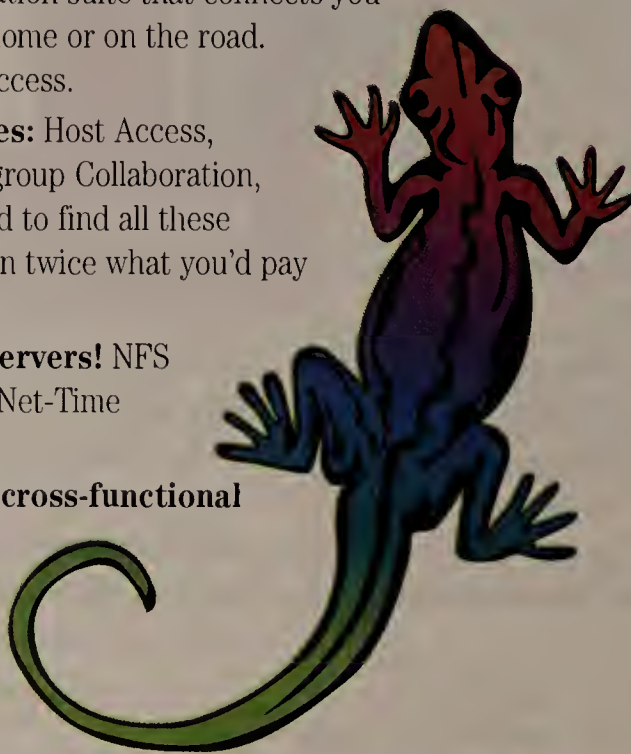
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Calendaring and scheduling application to ride Web wave

By Tim Ouellette

Let your Daytimers gather dust.

Vendors of calendaring and scheduling software, like many other segments of the software market, seek to leverage the Internet and cheap World Wide Web browsers to simplify on-line scheduling for users.

Vasquez plans a pilot test of Campbell's OnTime Web Server and server-to-server software.

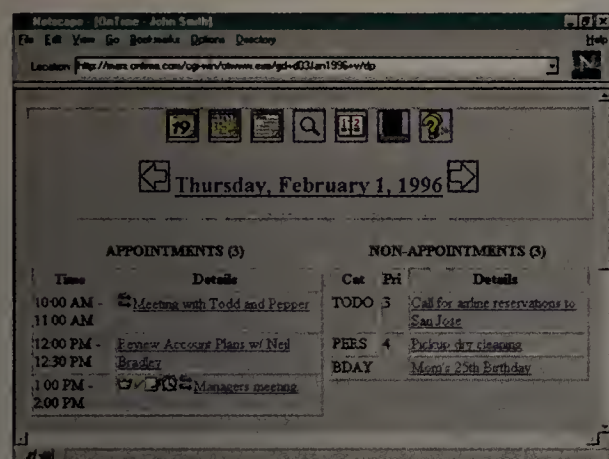
The OnTime Web Server will let remote users view their OnTime schedules with Web browsers. The server acts as a client to a Novell, Inc. NetWare or Banyan Systems, Inc. Vines LAN. It communicates with the OnTime software that runs on a separate LAN server.

Campbell's server-to-server software will let organizations that use OnTime schedule meetings with one another over the Internet. The software can be combined with the OnTime Web Server, and users don't even need regular OnTime client software; instead, they can use their Web browsers to schedule meetings.

For instance, an OnTime user at a legal firm could set up a meeting with an OnTime user at a client company, and neither firm would have to build any extra network infrastructure.

Novell plans for midyear GroupWise Web Access, which will let users access their GroupWise calendars and messages via a Web browser. But smaller vendors such as Campbell have a better opportunity to take advantage of user interest in Internet scheduling than larger groupware vendors, which must focus on improving more than just their calendaring and scheduling features, said Bill Nicklin, an analyst at Gartner Group, Inc. in Stamford, Conn.

OnTime is already used in large group installations. Vasquez said about 1,000 users at the University of Michigan schedule everything from vehicles to visual equipment with OnTime over a Vines network. "The only things we don't schedule with OnTime are the bathrooms," he said.



OnTime Web Server makes browsers universal OnTime clients

Campbell Services, Inc. in Southfield, Mich., is beta-testing two versions of its OnTime calendaring and scheduling software. One version will allow access to schedules from Web browsers. The other will provide access to other companies' OnTime servers that are connected to the Internet. The products are expected to ship by midyear.

"We are hoping to eventually use it to open up calendaring across the Internet with other organizations and departments in other universities," said Ed Vasquez, a systems administrator at the University of Michigan in Ann Arbor.

Users wouldn't have to play telephone tag, compare schedules and rework travel plans because the information would be immediately available on-line.

Conference callers can share documents

By Mitch Wagner

Until now, if you wanted to have charts, graphs or other documents as visual aids during conference calls, you had to fax or mail them in advance.

But Future Labs, Inc. in Los Altos, Calif., this week plans to introduce a service that will let users share documents in real time over the Internet.

The Internet TalkShow service lets users download free client software that they can add to their World Wide Web browsers as helper applications.

Simultaneous access

When the parties in a conference call point their Web browsers at the uniform resource locator for the TalkShow server, they can see the same document on their screens. Users can share and update documents created by any Windows applications.

Bell Communications Research, Inc. (Bellcore) is considering using Internet TalkShow to help with telecommunications technology training. An instructor could teach a class over the telephone; the visual aids would be documents written in Microsoft Corp.'s PowerPoint and Word.

"I'd be able to do teaching in real time to an audience that's scattered all over the place," said Kent Faust, an instruction manager at Bellcore in Lisle, Ill.

Beta versions have been very slow, but this might be because of Bellcore's firewall or memory allocation problems on the PC rather than the software, Faust said.

The Internet TalkShow service will be free until September, after which subscriptions will cost \$49 per year. Internet TalkShow server software will be available for licensing in the second quarter. The software will cost about \$2,500 for use on corporate intranets. The server runs on Windows NT and common Unix platforms.

'net used to preview Canadian trade show

By Michael Goldberg

If organizers of the Canadian National Internet Show have their way, conference attendees will get an electronic head start on the show — and then never leave.

Cyberplex Interactive Media, Inc. in Toronto, a World Wide Web consultancy and host for the show's home page, has set up interactive discussion groups on the Web that track main topics of the conference. They include security and on-line marketing. The conference will be March 28-31 in Toronto.

Jan Loomis, managing editor of "The Internet Marketing and Technology Report" in Carlsbad, Calif., said this is the first time she has heard of a 'net-centric conference going to the Web to engage attendees. She said it is a practical application of interesting technology. "They can 'focus group' the entire conference base that way," she said.

Instant access

Show organizers are using Digital Equipment Corp.'s Web server software, Workgroup Web Forum.

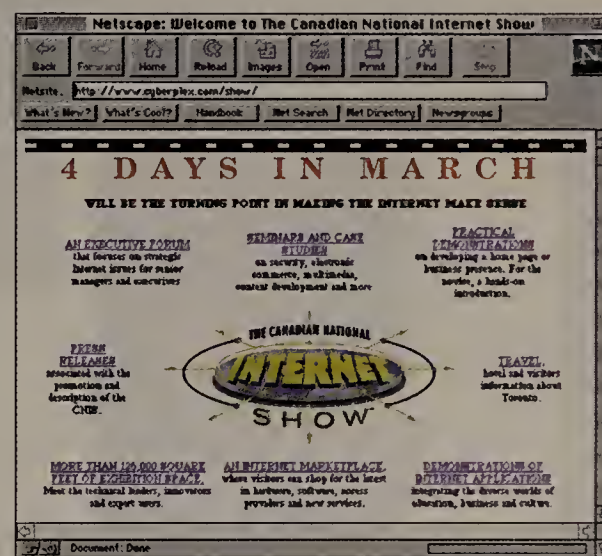
Potential attendees can tap in to discuss ideas for the show, questions keynote speakers should address and concerns about commerce on the Internet. Show organizers also plan to use the

software to poll attendees about points raised at the conference.

"We'll get some feedback on what perspectives attendees intend to [bring] to the show, what their issues are," said conference Chairman Walid Mougayar, president of CyberManagement, Inc., an electronic commerce consulting firm in Toronto.

Organizers intend to hold the show annually and maintain a Web site for continued forums, said Dean Hopkins, the Web site builder and a principal at Cyberplex.

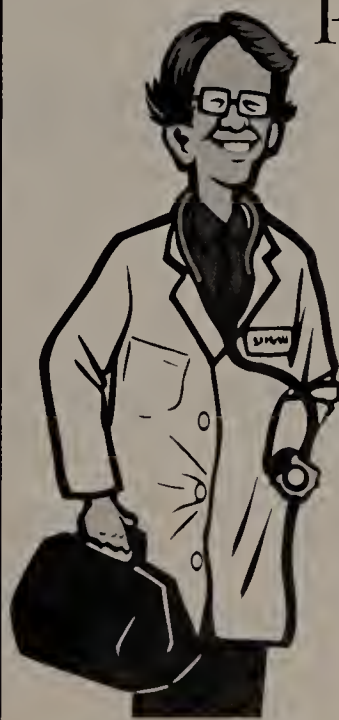
"You start to build up some kind of knowledge base that will stay after the show. It's a basis for continuing knowledge and discussion," Mougayar said.



Organizers would keep the Canadian National Internet Show running indefinitely on the 'net

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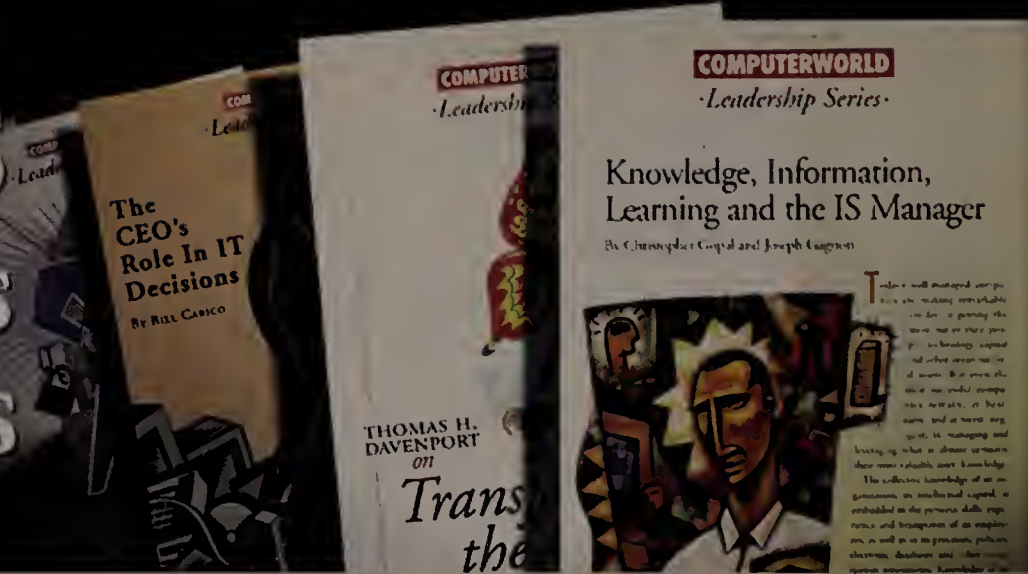
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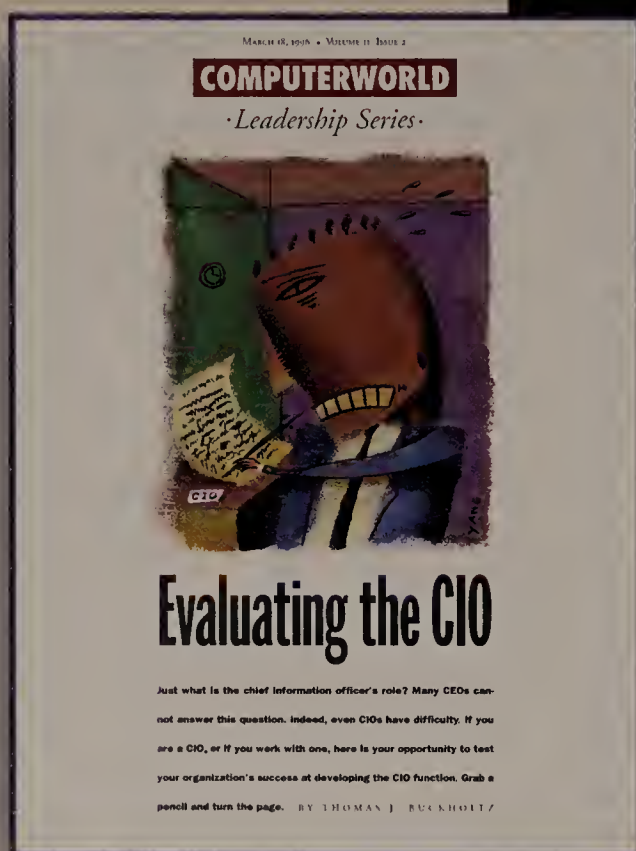
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Just what is the role of the chief information officer in today's organization? And how does an organization measure the value contributed by the CIO? Many CEOs can't answer either question, and even CIOs have difficulty. In this month's Leadership Series article, author Thomas J. Buckholtz offers CIOs an opportunity to evaluate their performance. The "leadership test" provides a model for defining the CIO's role and offers insight into where improvements can be made. Sharpen your pencil and get ready to be tested.

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Corporate Strategies

Utility charges to 2000

By Craig Stedman

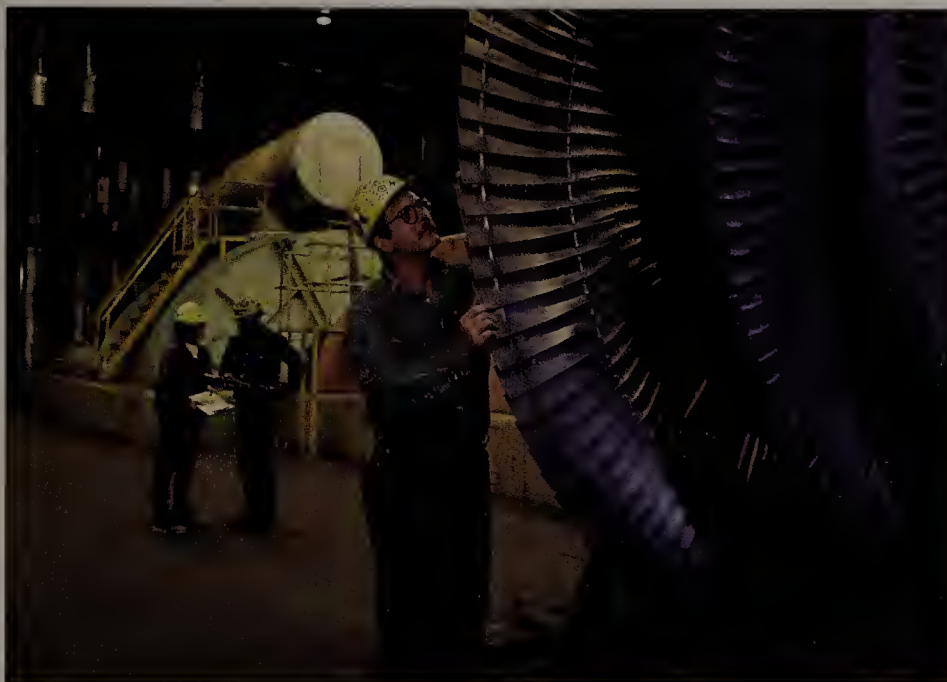
One of Debi Schaibley's goals in managing the year 2000 project at Tampa Electric Co. is that her work go completely unnoticed by end users.

But she said executives definitely took notice when she first told them what they might have to shell out to keep the Tampa, Fla., utility's mainframe applications humming beyond 1999. "They all went apoplectic," Schaibley said.

Initial talks with more than 20 vendors and consultants indicated it would cost about \$1 per line to fix Tampa Electric's 4.5 million lines of mainframe code to handle the arrival of 2000, which otherwise would appear as the year 1900. Schaibley's bosses asked her to find a way to lower the price tag.

Eventually, she turned to a Tampa-area consultant who had written C++-based PC software that automatically tracks and changes date fields in mainframe programs. Schaibley and the consultant then limited the scope of the process by deciding not to touch historical data and to forego testing finished conversion work on applications such as internal reports.

Schaibley wouldn't specify what the project's cost is pegged at. But by avoiding labor-intensive manual conversion



Tampa Electric hopes automated conversions will minimize its year 2000 testing requirements

work, Tampa Electric should be able to do the job for "substantially less" than her original estimate, she said.

The utility, which began a six-month pilot phase in January, now has four employees and contractors working on the year 2000 project. It expects to need no more than seven employees when the 22-month conversion process gets under way in June, Schaibley said.

Tried-and-true mainframe programs typically use two-digit annual dates, a

vestige of the days when big iron disk storage was so expensive that saving two bytes in every date field was financially prudent. But as 2000 enters the equation, such programs may mistakenly identify "00" as 1900.

The problem already has touched Tampa Electric; its mainframe viewed an equipment purchase contract that extends into 2000 as closed. Its three-year materials forecasting application is expected to crash next January if the code

isn't fixed by then, Schaibley said.

Besides holding down costs, the utility hopes the automated conversion will limit the time that individual programs will have to be closed off from ongoing development to 10 days or less. That's important because of upcoming deregulation that will do away with local utility monopolies and allow customers to buy electricity from multiple sources.

Can't afford downtime

"We can't take a set of code off regular maintenance for a month or more" just to modify the date fields, Schaibley said. "We need to be proactive to customer needs, and fixing something that's already working doesn't fit in that category."

Jon Bebeau, the consultant based in Lutz, Fla., who is working with Schaibley, said more than half the conversion process will be spent analyzing the utility's 6,000 mainframe programs. Similar programs will be grouped together and converted simultaneously by using tailored rules written in the conversion tools, he said.

The utility wants to wrap up the conversion work by 1998 to avoid any nail-biting deadline pressure. "We want all of 1999 to undo any problems or errors that we introduce," Schaibley said. "With legacy systems, you usually just change a piece at a time. This just about unravels the whole thing."

Rep. Ehlers shapes new 'CyberCongress'

By Gary H. Anthes

U.S. Rep. Vernon J. Ehlers (R-Mich.) calls it the "CyberCongress computer plan." Ehlers, who holds a doctorate in nuclear physics, has worked with computers for almost four decades. Now, the 62-year-old lawmaker has taken on his largest project yet: overhauling the antiquated systems and networking the offices of his 434 colleagues in the House of Representatives. Ehlers recently told Computerworld about his plans for a CyberCongress.



Rep. Ehlers was asked to 'computerize' the House of Representatives

CW: When did you first get interested in computers?

Ehlers: At the University of California [in the late 1950s], I used an IBM 650 computer with vacuum tubes and a magnetic drum memory. **CyberCongress, page 73**

Aetna mulls IS outsourcing

Bids sought for possible \$5 billion deal

By Thomas Hoffman

Aetna Life and Casualty Co. is in the early stages of soliciting bids for an outsourcing deal that industry watchers have placed at up to \$5 billion over 10 years.

"Our company is changing, and we need to position ourselves through cost variables to respond to those changes," said James Kane, a director at Aetna's information technology organization.

Aetna's interest in outsourcing is centered around the following three key business objectives:

- Improving its information systems service delivery while signif-

icantly reducing operating expenses.

- Improving end-user access to technical resources.

- Providing the best environment for its IS professionals.

"There are a lot of things we could do to be more efficient than we are today," said Max Gould, chief technology officer at Aetna.

Aetna "is focused as much as possible on improving profitability," said Weston M. Hicks, an insurance analyst at Sanford C. Bernstein & Co. in New York. Although Aetna is "making a lot of progress, they're not where they want to be," Hicks added.

Aetna is only at the preliminary

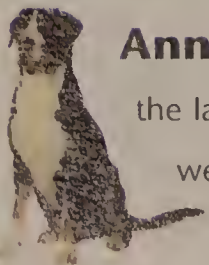
stages of exploring outsourcing partnerships with service firms such as Electronic Data Systems Corp., IBM's Integrated Systems Solutions Corp. and General Electric Co.'s GE Capital Technology Services unit.

Aetna expects to finalize the scope of any potential outsourcing deals later this month. Multiple vendors may be selected, depending on the recommendations the candidates offer and how their core competencies match with those suggestions. Aetna also may decide to keep its operations in-house with its 4,000 IS staffers, Kane said.

Aetna will likely make a decision on its IS plans by year's end, Kane said.

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THE NETWORK IS THE COMPUTER™

CyberCongress

CONTINUED FROM PAGE 71

ory. I programmed in symbolic assembler language. That was a great education in how computers work, and I've been using them ever since.

CW: What did you do while you were a Michigan state senator?

Ehlers: I was asked to modernize the com-

puter system there. I was the unpaid project manager. We went to a totally LAN-based system — no mainframe. That caused great consternation to our computer center director, but I said, "This will work, and it's less expensive." At the time, 1987, it was one of the largest systems of the type. That's what was so significant because government people don't normally take risks, but I took the risk, and it paid off.

CW: What are you up to now?

Ehlers: Shortly after I got here [January

1994], Newt Gingrich tapped me to computerize the entire House. The plan is out there, and we are implementing it. The software architecture will be Microsoft Exchange. The hardware will be client/server-oriented, and we are trying to persuade my colleagues to buy new computers for their offices.

CW: What are the risks or challenges you face in this effort?

Ehlers: Exchange is a brand-new product. It's not even on the market yet. And there are tremendous political challenges. There are people who know something, or they have a relative in the business, or they have hooked up five computers in their office and they say they understand it. What they don't understand is the complexity of hooking up 12,000 computers, which is what we have. There are lots of pitfalls.

CW: What will be the main benefits of the new system?

Ehlers: You'll be able to access all House documents, bring them up on your screen, do word searches and so forth. Also, with the messaging system, you can have five different people working on a draft simultaneously. If you get everyone on-line at the same time, people can write their comments and everyone can see them and say, "Yes, good idea," or "No, I don't like that." That will save a lot of time.

CW: Will it save taxpayers any money?

Ehlers: In all my work with computers, I have never sold computers on the basis that they'll save money.

CW: How techno-savvy is the typical House member?

Ehlers: All over the map. Few have much technical knowledge, but every election you get more computer-literate people in.

From typewriters to frame relay

House members fall into two broad categories: Those who have been in office for 20 years or more and use PCs to manage constituent correspondence and typewriters for everything else; and those who have been recently elected and use PCs and LANs the way a business does.

The House is served by a huge LAN populated with old Unix-based boxes that serve dumb clients and a mix of more modern servers and PCs. Interoffice communication is hampered by the use of nine different electronic-mail packages. "If I want to send E-mail to the office next door, it's actually easier to send it over the Internet than over the House computer system," said U.S. Rep. Vernon J. Ehlers.

Under the CyberCongress plan, a frame relay-based intranet will let House members and their staffs work as easily in their district offices as in Washington. It will stitch together different hardware and software by using World Wide Web browsers and Microsoft Exchange as a messaging backbone, said Reynold Schweikhardt, a staff member who is on the Committee on House Oversight. — Gary H. Anthes

Brief

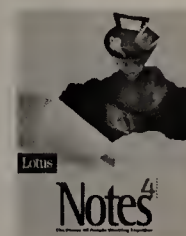
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THE LAST LAUGH

If you wrote off mainframers, think again. IS executives are bringing them back as middle managers now that client/server has gone mainstream.

**By Thomas Hoffman
and Rosemary Cafasso**



'Legacy knowledge' helped Claire Lash earn her promotion to director of systems at American President Cos.



No Money, Honey!
First Massachusetts
Bank makes a crashing
debut. Page 76



**FYI: Ways to
avoid alignment
agonies.** Page 80

"He said, 'Don't bury me 'cause I'm not dead yet.'"

— Elvis Costello, *Mystery Dance*

Just look at those old-time mainframers who now are landing new jobs or prospering in high-profile IS management positions. Not only did they not slip into the void of the legacy netherworld — as industry soothsayers predicted just a few years ago when client/server computing exploded — but some have even outmaneuvered IS professionals schooled in PCs and servers to land top jobs.

For large-scale, mission-critical client/server systems to be successful, they must include components of the traditional mainframe environment. These include solid systems management, security, backup/recovery and a disciplined and careful approach to development and deployment.

Other desirable traits include mainframers' understanding of how an application fits into a corporate information technology infrastructure and their grasp of cross-functional systems — not to mention their vast business experience.

It's hard to pin down precise numbers of new jobs available for mainframers, but many chief information officers say they still place top value on these skills. Recent research from the Society for Information Management (SIM) shows this new appreciation for "Cobolers." In "Reshaping the IS Culture," a report sponsored by SIM and IBM and issued late last year, several companies said the disciplines and rigors of mainframe development are critical in today's client/server world [CW, Nov. 27, 1995].

These opportunities are cropping up now more than ever, as the riddles behind client/server computing have begun to emerge. When the first wave of client/server hit, there was an "awareness gap" regarding the value mainframers could bring to the table, says Don Cameron, a partner and consultant at Computer Sciences Corp. in Newton, Mass.

Now that CIOs have had a few years to absorb the complexities of client/server computing, that kind of thinking is changing. "We've seen an awareness growing in our clients that mainframe skills are more transferable than they thought," Cameron says.

Lashing out

When American President Cos. in Oakland, Calif., last year wrapped up a companywide re-engineering effort, which included business units and its information systems group, Claire Lash, a self-described mainframer, landed a primo job.

Under the new structure at American President, each business unit now has an IS group assigned to it. Lash, who had worked in IS at the company for 10 years, was promoted to director of systems at the worldwide support center business unit. The unit handles customer support for the company's railway and ship transportation business.

Lash's group is responsible for maintaining this unit's systems, which are mostly legacy programs. Lash says the worldwide support center is slowly migrating to client/server systems. One effort under way is building a data repository based on an Oracle Corp. relational database management system.

As she embarks on that project, Lash insists that her

programmers model the data carefully, determine where the flaws are and make sure the mistakes aren't proliferated throughout the new database. In other words, she's determined to ensure data integrity, one of those rock-solid mainframe attributes that is so vital to client/server projects.

Diane Silver, a vice president of information strategy at American President, was one of several senior IS managers who interviewed and then promoted Lash to her current position last October. Silver says it was Lash's mix of skills — her legacy sys-

tems knowledge in particular — that made her such a good fit for the new position.

"She worked for me for a long time," Silver says.

"She has fabulous technical skills. She started as a programmer. She was a systems architect. She has a tremendous amount of legacy knowledge."

Banking on experience

When First Interstate Bancorp decided to build a companywide IBM DB2-based data warehouse in 1994, the Los Angeles-based bank decided it needed someone with strong legacy and people skills as it moved to a client/server-based architecture.

"We're building data marts in client/server in addition to building large data warehouses," says John Chatfield, senior vice president of data services at First Interstate. The bank's merger with Wells Fargo Bank is expected to be completed in the second quarter this year.

"Data marts" are smaller, specialized subsets of data warehouses. Building them requires intimate contact between IS and end users before, during and after the systems have been delivered, Chatfield explains.

That's just one of the many reasons Chatfield and other First Interstate executives selected David Nicoll



**David Nicoll, data warehouse
project manager, First Inter-
state Bancorp**



**Dave Merrett, director of sys-
tems development, Canadian
National Railways**

as a data warehouse project manager in September 1994. Chatfield says Nicoll was recruited from First Boston Corp. primarily for his interpersonal skills, his keen judgment, emotional stability and flexibility. (Nicoll has crisscrossed from England to Kuwait to the U.S. during his 25-year career.)

In this era of corporate downsizing, "people are going to have to be more flexible about relocating," says Nicoll, 45. He began his IS career in 1970 at Rolls Royce PLC, where he was a Cobol programmer who helped develop aircraft engine assembly systems.

Along the way, Nicoll has sharpened his technical and leadership skills. From 1979 to 1986, he worked for a consultancy as a team leader and built payroll, personnel and housing systems for the Kuwaiti government. From there, he joined First Boston (now CS First Boston Corp.), where he picked up C and Windows programming skills.

This background has served Nicoll well in his current job where he coordinates the work of the database administrators, the data analysts and end-user computing representatives who report to him. In the course of his work, he makes sure they stick to the bank's timetables for rolling out each phase of the repository.

Working on the railroad

As CIO at Canadian National Railways, Ronan McGrath is ultimately responsible for a vast network of 200 LANs and 15,000 PCs. But he's also running about 1,600 MIPS of mainframe processing power.

That's why McGrath has placed some old-time mainframers in key IS management positions and will continue to do so. They include Dave Merrett, whose career at the railroad went on track 27 years ago and who now holds one of the most critical IS jobs at the Montreal-based company.

Since 1993, Merrett has been director of systems development for the company's mainframe-based railway transportation system. The software is the key transaction processing system in the company and cost \$100 million to license and implement. It will be the foundation on which client/server and desktop

applications will be built. The software handles 600,000 transactions per day.

"I think there was a view that things get done quickly in the PC world and folks who once wired boards into 1401s [one of the original IBM computers] wouldn't understand it," Merrett says. "There is some truth to that, but there are a lot of disciplines from the old world that are really important."

Given how much was riding on the railway transportation system, McGrath wanted seasoned veterans. "I put Merrett there because he understood our business and he understood the process flow extraordinarily well," McGrath says. "He obviously understood the technology, but more importantly, he understood the business."

McGrath says that because this project was so complex, "we couldn't have done that with PC-based people."

Hoffman is a *Computerworld* senior editor, IS management. Cafasso is a freelance writer in Walpole, Mass.

ATMs that couldn't cough up cash spoiled the debut of First Massachusetts Bank. Robert L. Scheier pins down what went wrong.

Here's a lesson for information systems managers: When the stakes get really high and really public, you need to get really fanatic about checking details.

That was made painfully clear over Presidents Day weekend as the IS staff at First Massachusetts Bank in Worcester, Mass., struggled to convert 23 automated teller machines (ATM) it had acquired from Shawmut National Corp. to its own system.

On Saturday, customers found their Shawmut Bank ATM cards were worthless. Many found that their new First Massachusetts ATM cards didn't work either. These problems were caused by hardware and software glitches in the conversion of the ATMs, which Hartford, Conn.-based Shawmut sold as part of its acquisition by Fleet Financial Group in Providence, R.I.

Needless to say, customers were "very angry," says Cheryl Fatnassi, vice president and director of electronic delivery systems at Banknorth Group, Inc., the Burlington, Vt., bank holding company that owns First Massachusetts.

The snafu shows the "monumental number of picky details that have to be checked" in such conversions and the need to treat the process as a rigorous science, says Art Gillis, president of Computer Based Solutions, Inc., a banking consultancy in New Orleans.

Fatnassi did have a project plan, which was based on successful conversions that involved as many as 100 ATMs and more than 100,000 ATM cards. It called for her staff to start updating hardware, software and telecommunications links at ATMs after the purchase closed Friday at 2 p.m. and be finished by Sunday. But not-so-obvious differences among ATMs soon popped up.

Some ATMs wouldn't run the bank's bilingual user interface, for example, even though they had supposedly received the necessary upgrades. "We had to pull every board" and read clip numbers to make sure each ATM had the proper version of

NO Money, Honey



firmware, Fatnassi says. That, plus the need to fix physical components such as cash dispensers, meant the last ATM wasn't upgraded until Tuesday morning.

In previous conversions, Fatnassi's staff had access to the ATMs before the sale. "That was an item that we had discussed with [Shawmut] regularly, right up to the week of the conversion," she says. "In the end,

they decided it was too much." Shawmut was selling different branches to different purchasers at the time of the First Massachusetts conversion and would have been overwhelmed scheduling ATM inventories for different purchasers and all the other work involved in a bank sale.

Meanwhile, Fatnassi's staff found that even upgraded ATMs weren't

working with some of the new cards. It turned out First Massachusetts had misinterpreted a decryption code for the personal identification numbers (PIN) that Shawmut had provided to First Massachusetts. If the algorithm subtracted two from zero, "does that create an 'eight' or a 'negative two'?" Fatnassi says. Her staff assumed the algorithm in the decryption code worked the same as similar algorithms they had used in previous conversions. They assumed wrong. Many customers were assigned the wrong PIN, and their cards didn't work, Fatnassi says.

After First Massachusetts cleared up that confusion, it had to rerun the algorithm, verify the new PINs would work and then transmit them to Deluxe Data Systems, Inc. in Milwaukee, which processes ATM transactions for First Massachusetts.

That work wasn't finished until 1 a.m. Monday, but even then the problems weren't over. At 9:11 a.m. Central time Wednesday, an operating system error crashed not one but two of the Tandem computers Deluxe uses to process ATM transactions, says Ron Ball, vice president of marketing. The Tandems were back up in two hours, but it was another four hours before First Massachusetts' ATMs came back on-line.

By the end of the week, the ATMs were working and the furor had died down. Bank spokesman David Reville says he has "no idea" how many customers the bank lost because of the glitch.

What lessons has Fatnassi drawn? As for the ATMs, there is "probably nothing we could do differently" because of lack of access to them before the sale. Fatnassi says in the future she will require examples of calculations performed with the algorithm "to make sure that what we think we heard is what they said."

Gillis says he would move heaven and earth to make sure he had all the information he needed before attempting such a conversion again. "Unless I know exactly what I'm dealing with, I'd be courting disaster," he says. An ATM conversion "is a space shot, and sometimes the O-rings aren't right and the Challenger blows up. It's the kind of disaster where one is too many." ■

Scheier is a *Computerworld* senior editor, management



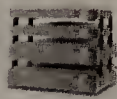
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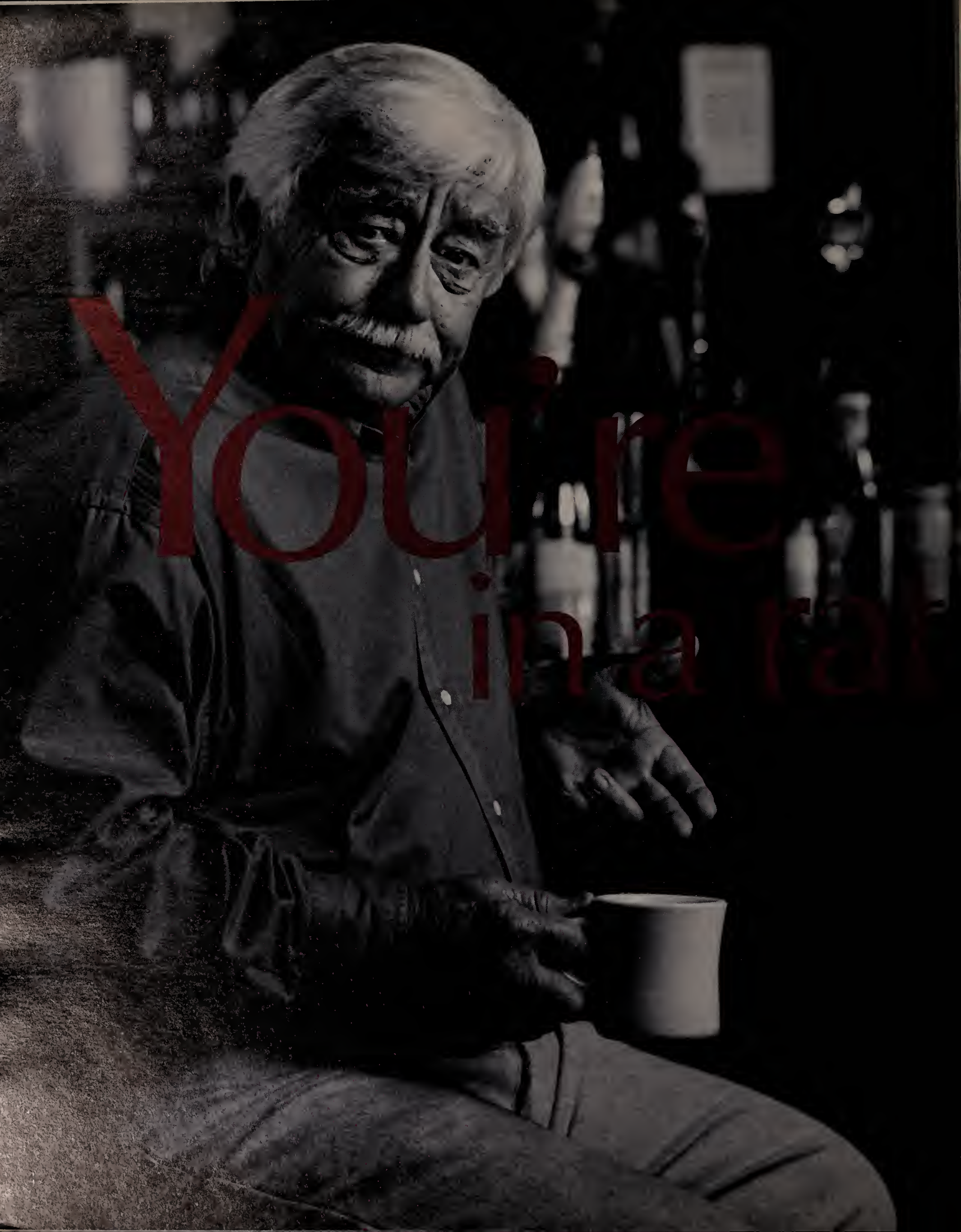
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He asked me if I'd like to invest in something new.

He explained how he thought that one day, people everywhere would wear athletic shoes all the time. For all kinds of things. And he showed me some drawings of shoes, with the oddest looking logo I'd ever seen.

"Sounds very interesting," I said, trying not to sound too patronizing. "But new things tend to make me nervous." And with that, I excused myself.

Now unless you've been living on another planet the past twenty years, I don't have to tell you what happened to that man and his idea.

So when my son, the computer whiz, told me NEC's 250 MHz V_R4400™ runs Windows NT up to three times faster than the 100 MHz Pentium processor, I listened.

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Avoiding alignment agonies

What a meeting! Three hours of users yelling in your ear. You need some ways to align information systems with your tormentors — and you need them badly. A new study from The Society for Information Management's (SIM) Advanced Practices Council might help.



Carol V. Brown

SIM asked two professors to interview 44 leading chief information officers on the mechanisms they most rely on to build effective IS/business partnerships.

CIOs are using many techniques, they report. "You have to use several tools at once from your tool kit," says Carol V. Brown, an assistant professor at Indiana University in Indianapolis. "You also have to change and adjust the tools over time and continually experiment."

Their findings include the following:

- These firms rely on people who are contact points between IS and other departments, business units or business processes. They can be midlevel IS managers or high-level divisional IS executives. Companies are having trouble finding people with the right skills. Some CIOs are raiding consulting firms to fill these jobs.
- IS steering committees made up of non-IS executives are now more popular at the business-unit and project level than the corporate level. CIOs are also fond of councils of senior IS managers. One reason is to prevent IS managers from overidentifying with users.
- Informal contacts with users remain important.
- CIOs are experimenting with rotating IS staff through temporary assignments and asking direct reports to be their training champions.
- Relatively few CIOs are relying on electronic mail, videoconferencing and other technical means to coordinate IS with users.

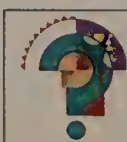
The full report is available by contacting SIM at (312) 644-6610 or at info@simnet.org. The cost is \$175 for members and \$350 for nonmembers. Brown can be reached at cbrown@indyvax.iupui.edu. Her "co-investigator" is V. Sambamurthy, an associate professor at Florida State University in Tallahassee. He can be reached at smurthy@cob.fsu.edu. — Allan E. Alter

IT services focus of new expo

The Javits Center in April isn't springtime in Paris, but information systems managers who pay good money to information technology service firms should note this new Gartner Group event: the **IT Services & Outsourcing Strategy Conference and Exposition**, New York, April 23-25.

Gartner hopes to make this the top conference/expo combo for the IS services industry. The conference focuses on strategy and IS management; speakers are mostly Gartner consultants, leavened with IS executives from Aetna, British Petroleum and Carrier. Gartner hopes to get outsourcers, asset managers and other service providers to exhibit; ADP, ENTEX, IBM, Keane, Unisys and Xerox are among those that have already signed on.

Fees: \$495 for one day to \$995 for all three days. **Contact:** Expocon Management Associates, (203) 256-4700, ext. 139.



Boris A. Babayan

Executive Track



WizCom International Ltd., the reservation processing subsidiary of Avis, Inc. in Garden City, N.Y., has appointed **Thomas H. Murphy** vice president. The former vice president of information services at Omni Hotels will supervise the implementation of a reservation and rental management system at Budget Rent A Car.

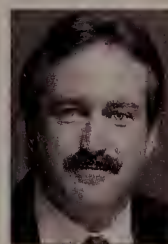
Larry Kittelberger has joined **AlliedSignal, Inc.** as vice president and chief information officer.

He will assume responsibility for developing worldwide information systems for the company, which is based in Morris Township, N.J., and operates some 400 facilities in 40 countries. Kittelberger had been with Tenneco for 25 years, most recently as the CIO of its Newport News Shipbuilding division.



William A. Bautz was recently named senior vice president at **New York Stock Exchange, Inc.** He will report to Robert J. Britz, group executive vice president at the exchange.

Previously, Bautz was managing director of global systems at American Express Bank Ltd., which he joined in 1988. He has also held IS positions at Shearson Lehman Brothers, Inc. and IBM.



C. Lawrence Meador was recently appointed senior vice president and division IS officer at **Cigna Property & Casualty Cos.** Previously he was Cigna's senior systems officer.

Before joining the Philadelphia-based insurance and financial services firm, Meador founded Management Support Technology Corp. in Boston. In addition, he serves on the academic staff at MIT's School of Engineering.

Health care CIO compensation

Salaries are rising in the field . . .

AVERAGE BASE SALARY FOR CIOs IN HEALTH CARE INDUSTRY

1989	1992	1995
\$77,600	\$91,600	\$97,000

. . . with the size of the facility
the most important factor in pay.

BASE SALARIES BY NUMBER OF BEDS IN HOSPITAL

Hospitals with fewer than 200 beds

CIOs with base salaries under \$69,000: **64%**

CIOs with base salaries over \$119,000: **7%**

Hospitals with more than 999 beds

CIOs with base salaries under \$69,000: **2%**

CIOs with base salaries over \$119,000: **53%**

SOURCE: 1995 survey of approximately 300 chief information officers in the health care industry by the College of Healthcare Information Management Executives, a professional association in Ann Arbor, Mich.

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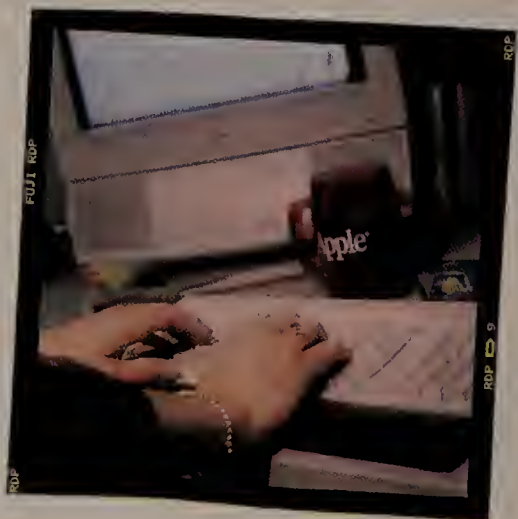
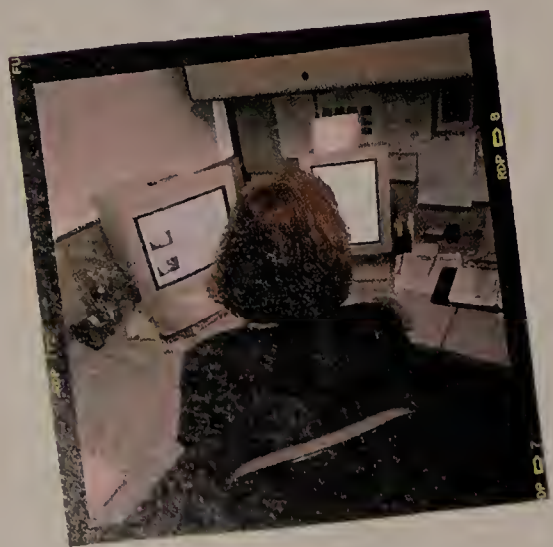
In Depth



By Mary Ellen Bercik

Cybrarian to the rescue

She gets people out of jams. Whether getting the lowdown on competitors, the scoop on new products or doing a speed



6:30 a.m.

Java! Not the language, the beverage. We cybrarians live on it, and my little programmable pot has it ready for me by 5:45 a.m. I wish all technology could be as simple and supportive as that coffee-pot.

I check my electronic mail while I'm home to see what to expect when I get to the office at 8.

8 a.m.

I work in the corporate library at Apple Computer, Inc. headquarters. My work involves doing on-line research for Apple employees worldwide. I find information that my users need so they can create, market and sell next-generation software and hardware. About 40% of the research I do is used for product development and involves technical subjects such as engineering and computer science.

Another 40% is more business-oriented. I help sales and marketing employees investigate new markets and supply company information about current and prospective sales accounts, distribution channels and advertising campaigns. I have helped our worldwide operations groups find suppliers and packaging materials. I have provided real estate information used in site selection for factories and offices and various information used

to support business logistics.

The remaining 20% of the questions the library receives fall into the category of "anything an employee needs to know to get his job done." The library staff works closely with executive speechwriters to find quotes for speeches, computer industry time lines to be added to presentations and statistics to support executive statements. John Sculley (Apple's former chairman and CEO) wrote his book *Odyssey* (Harper Collins, 1988) in the Apple library, and his speechwriter would call us to uncover little-known facts or colorful quotes to add to Sculley's speeches.

The library staff gets a little breathing room in the morning to read E-mail and plan our day. We usually arrive earlier than the programmers and research types, who are notorious for late hours.

8:15 a.m.

I sip my third cup of the hot stuff as I look over the slew of requests. They arrive in electronic formats (forms and E-mail), by telephone or in person. Most are sent to a central library E-mail account. The requests are printed out for the research staff to review and select. The researchers determine their workloads and work with one another to ensure that all requests are picked up that day. Turn-around time per request varies from an hour to a week. Most are filled in about two days.

Once a researcher has picked up a request, she logs it into a Claris Corp. FileMaker Pro database that is used to track the request from start to fin-

ish. Each month from the database we produce statistics that provide a clear idea of who our clients are, what they are researching, the amount of time and money it took to produce the research, the on-line systems used and other data used in the administration of research services.

My group of five handles thousands of research requests each year. The questions run the gamut. There's the exhaustive: "Everything there is to know about ISDN." (Gag! We'll need to help this person better define his request, unless he wants a couple of gigabytes of information.) Then there's the run-of-the-mill: "What is the forecast market size for ATM networks, handheld computers and set-top boxes?" or "What is the FCC proposing in regard to opening up more broadcast spectrum to the public?"

Jan, a researcher from Apple's advanced technology group, has sent the most interesting request of the day. (Selfishly, I grab it.) Can we get him information on the cave paintings recently discovered by an amateur archaeologist near Vallon-Pont-D'Arc, France? He wants copies of the full scholarly research done by the expert who is excavating the caves and anything we can find about the International Committee on Rock Art. He is also looking for names of Bay Area experts in cave painting and anything we can find on photography in caves.

Jan is investigating the feasibility of making a QuickTime virtual reality movie inside the caves, which would be used in a demonstration prototyping Apple's QuickTime virtual reality technology. (The technology lets you make interactive, three-dimensional spaces by using photos, video stills and computer renderings. The images are then blended together into a QuickTime movie.)

Hmm ... I know I can find information about the International Committee on Rock Art and general news reports about the discovery on Dialog, but no way would there be pictures of the paintings. Before I spend a few hundred dollars searching Dialog, I check the Internet.

I search on Yahoo (<http://www.yahoo.com/>) using the words "cave painting"
Cybrarian, page 86

Gathering of current research, this 'net-aholic knows where to go on-line.



Cybrarian

CONTINUED FROM PAGE 85

and get a link to the French Ministry of Culture World Wide Web server. Gold mine! Everything I need on the cave paintings — reports of the findings, experts' writings and, lo and behold, images of the paintings — on my screen. Now I know why they call it Yahoo! It took me less than five minutes to come up with this, and I am jazzed. This is the kind of thing that makes your day when you do what I do for a living.

Next, I use Dialog (a proprietary, professional on-line system) to retrieve the rest of the scholarly papers Jan requested. I also gather some articles about cave photography and information about the International Committee on Rock Art from Dialog. Later today, I will edit this information into an easily readable packet and E-mail it to Jan. I still need to find some local cave experts. That will require a few telephone calls and some additional detective work, but I should have that information in the next few days.

10 a.m.

Off to teach a class about navigating the Web. Managers in most departments around Apple are mandating that employees learn the Internet.

Marketing and product support groups have been told to get documents into Hypertext Markup Language (HTML) so they can be posted on Apple's Web server (<http://www.apple.com/>). Human resources has heard there are employment resources on the 'net, but where? Benefits people need to get the employee handbook and thousands of other benefits-related documents into HTML in three weeks.

Soon, Apple will be delivering its own corporate communications on a private intranet server that will be accessible only from within the company. Apple departments will publish internal documents from there. The two individuals assigned to put benefits-related content into HTML were authoring for the Web before they ever surfed it. I'm impressed! Now they're in my class learning how to navigate the 'net.

In class, I do an overview and discuss protocols, universal resource locators (URL), domains, gophers, file transfer protocol, Telnet and so on. I try to put people at ease by explaining that my Internet training was a lot less formal — I learned on the job. I have since augmented my experience with seminars and classes on writing HTML. Many of the people in these classes are embarrassed by what they don't know. That's where being an information specialist can help: people view us as non-judgmental.

I wrap up the class with a reminder to my students that the Apple library has a home page on which they can find filtered and organized Internet sites. Two colleagues and

I developed the library's home page, and the result is getting good reviews from Apple employees. I tell the students that if they would like additional one-on-one Internet training, they can drop by the library on Tuesdays.



figured out business models and now charge for information. For example, during the beta period of the *Mercury News* in San Jose, Calif., you could get all its daily news stories for free. Now, some are free, but you pay a subscription fee to access the late-breaking stories.

Lunchtime

I should be at the gym, but instead I grab a sandwich from the cafeteria and read my listserv mail, check CNN Interactive and just surf the 'net to see what's going on. This habit has got to stop.

Listservs — for those of you who aren't yet initiated — are E-mail-based discussion groups on the Internet to which you can subscribe. There are thousands of them, and I am signed up on one for Internet trainers called NetTrain.

1 p.m.

An employee from public relations is on the phone. Apple is issuing a release in New York related to our earnings — in an hour. She needs some background information: three competitors' financial results for this quarter. No problem.

Used to be I would jump on Dow Jones or Dialog and check the business wire for this. That would cost anywhere from \$10 to \$35 per company, depending on the information needed. Now I just hop on to our competitors' corporate Web servers and look for press releases. Nine times out of 10, it's there, and I've just saved Apple upwards of \$100 by using the Internet.

Within 20 minutes, I've E-mailed the financial data to PR personnel, who use it to brief executives so they'll be prepared to answer questions at the press conference.

2 p.m.

Howard, a hardware engineer who designs keyboards, comes in looking for the specifications of an ergonomic keyboard that I'll call the ErgoType. He knows the manufacturer (which will remain nameless), so I jump on its Web site to look for technical documentation. Yup. It's there along with the specs: a three-page description of the design and a picture of the keyboard. Fifteen minutes after Howard arrives, he's trotting back to his office with the information I downloaded. He will compare the specs used in the ErgoType against ones used by Apple in its keyboards.

We used to pay good money (like thousands or tens of thousands of dollars) on an annual basis to get this kind of information from a market research firm. By using the Web, I just got this for nothing and retrieved it in a quarter of an hour.

Don't get me wrong, not everything on the 'net is free. Many of the information providers publishing on the Internet have

3 p.m.

Most cybrarians I know are information addicts. They want to look at everything. A lot of what makes me a good information specialist, though, is knowing how to *evaluate* information sources (see box).

The basic principles are fairly consistent across all media: Is it current? What gives the publisher authority? Are the authors recognized experts? How did they get their information, and how reliable is it? You need to ask these questions constantly.

Even with the terrific search engines available, people have a heck of a time finding what they need on the 'net. I guess it's a kind of job security for me, but I'm not cocky about it. I know I have to stay on the cutting edge, or my days are numbered.

My philosophizing is interrupted when the phone rings. It's Julia, a researcher in the Advanced Technology Group. She's trying to locate experts who are working with ferroelectric liquid crystals. She has an idea about how liquid crystals might be

used in future screen technologies, and she wants to discuss it with them.

I know that Max Planck Research Group in Halle, Germany, has a home page that lists the names, addresses and phone numbers of researchers who work with liquid crystalline systems. (I know this because I was at the home page the other day doing research for another client. I bookmarked the URL, knowing that questions about liquid crystals come up now and then.) I E-mail Julia names, addresses and the URL in less than 15 minutes. *This is what I love about my job!*

3:30 p.m.

One more cup of joe, and that's it for the day. I whip out some E-mail, return a few sales calls, then hunker down to do HTML scripting. I've authored several Web pages for the Apple library home page, and it's time to add to them. It's my job to evaluate and select Internet sites that will be useful.

I also check the sites I've already listed to make sure they still provide useful content. I take off my shoes, launch my text editor and away we go!

As of this week, Bercik left her job as supervisor of research services at Apple Computer, Inc. to become manager of information services at VLSI Technology, Inc. in San Jose, Calif. She can be reached at mbercik@aol.com.

Insider searching tips

If you take a few minutes to outline a search strategy, it will pay off. Ask yourself, where have you found this information before? How common or obscure is the topic? What key words or terms are used to describe it? The answers will help you make educated guesses about which search tool or database to use.

● **FINDING OBSCURE TOPICS.** If your topic is obscure, search in large databases that index thousands of Internet servers such as WebCrawler (<http://webcrawler.com/>) or Alta Vista (<http://altavista.digital.com/>). Search on key words without restriction. Don't ask for an "exact match" or require the word be found in a certain part of the document. Think of as many synonyms as possible for the key words. Also, don't forget there are different ways to spell the same word, depending on country of origin.

● **CLARIFY SEARCH OBJECTIVES.** It will save you time and money (when costs are involved). Using targeted, specific key words results in more relevant hits and means less time spent browsing results — one of the most time-consuming aspects of on-line searching. Always use the most unique or specific key words you can think of. Don't search on common words or names.

● **USING POWER FEATURES.** Use search engines that offer power searching features such as The Open Text Index (<http://www.opentext.com/omw/f-omw.html>) or Alta Vista. Using The Open Text Index Power Search, for instance, you can specify where on the home page the key words are located such as title, summary or URL. You can indicate the relationship between the key words by selecting And, Or, But, Not, Near and Followed By. Professional searchers call this "proximity searching," and it is extremely important for narrowing results in full-text databases.

Weighted searching in The Open Text Index ranks the Web pages containing your key words by Occurrence Count (word frequency) and whether the word is present or absent from the document. You can specify the location of the key words, then indicate importance of a search term by giving it a numeric weight. The more specific your search, the more specific your results.

Alta Vista's Advanced Query lets you display results in various forms as standard, compact, detailed or count only. This is very helpful for quick scanning of results.

— Mary Ellen Bercik

Computer Careers

Strained bedfellows

For some webmasters, managing the new marriage between IS and users comes easily. For others, this is no honeymoon.

BY DAVID WELDON

L. L. BEAN

Make sure to take it personal

When Steven Nickerson began to develop the first Internet home page for L. L. Bean, Inc. last year, he discovered a stumbling block where he least expected it — his personal communication skills.

As corporate systems specialist at the Freeport, Maine, outdoor clothing and equipment retailer, Nickerson served as a technical consultant to business users and as the main information systems contact with the Massachusetts company that would build and maintain L. L. Bean's World Wide Web site.

The project had strong buy-in from marketing, IS and management, and a special project team had been established to carry it out. Everything was in place except for one critical ingredient: Nickerson hadn't mastered the personal skills his new relationships required.

The result was a breakdown in communications. Business users knew what information they wanted. The project group did a good job of explaining marketing's needs. But Nickerson didn't always respond quickly. But he learned quickly the pitfalls of not building strong relationships with the users with whom you're going to build Internet sites.

Eventually, Nickerson's boss, the

vice president of IS, appointed a facilitator to work with the team.

"The facilitator [helped] the new business users take their requirements and boil them down into a project that IS could take a bite out of," Nickerson says. "Part of the reason a facilitator was needed was because I wasn't doing a good job. Communication skills are something I've found myself needing to really improve. [The users are] very good at asking the right questions, but I'm not always able to give answers as fast as they need them."

Six months later, L. L. Bean's Web site is up and running. Catalog and company information are easily accessible. The facilitator still works closely with the project group as it prepares the next phase of content for the Web site. And Nickerson says he's learning to be more open and understanding: "A business relationship is like a personal relationship — it takes effort, time, compromise."

HARLEY-DAVIDSON

Never having to say you're sorry

That level of openness and mutual understanding is something that Richard L. Koble is counting on heavily at Harley-Davidson, Inc. in Milwaukee.

As director of IS, Koble has been in the thick of things since Harley marketing executives last year asked IS to develop the motorcycle company's first Web page. The goal: Give customers access to information about specific motorcycles or biker rallies planned for their area.

Koble says key marketing and IS employees formed two project teams to tackle systems issues and address business concerns. A key factor in their makeup was that members had worked together before.

"The good news is that we're starting from a good relationship. There has been a lot of trust in each other," Koble says. That bond also is reinforced by good relations between Ko-

ble and his peer in the marketing division, Steve Piehl.

"Steve has a very good view of [information technology] and has some experience on the Internet," Koble says.

"Because this is all new stuff, communication skills are very important. Unless you go forward asking a lot of questions and developing a rapport, you probably won't get very far. Tolerance for that ambiguity is very important," Koble says.

THE WHITE HOUSE

Showing them who's boss

Not all business users are so accommodating to the needs of IS. One of the biggest headaches for Richard Borchelt is when business users ignore his needs for maintaining their Internet content.

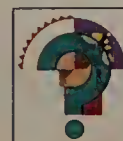
As public affairs specialist for the Office of Information Sciences at the White House, Borchelt is responsible for posting and maintaining the on-line content for the Office of Sciences and Technology on the White House home page. The content includes electronic versions of public statements made by President Clinton, copies of press releases and committee reports.

Borchelt has no problem with buy-in from the top. No public documents can be released in print until they are also ready to go on-line — by executive order.

Borchelt says the biggest strains in his relationships come when users are unrealistic about IS time and staff. "We have few on staff here at the White House who can convert these huge, often very graphically intense documents," he says.

When his users show up with a committee report in one hand and no compatible disk or electronic format in the other, the report goes nowhere. That mistake can delay public release for up to six weeks. They learn quickly, Borchelt says. ■

Weldon is *Computerworld's* senior editor/Careers.



Industrial Light & Magic

Career Watch

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Computer Careers

Conference and events of interest for IS career development

EDUCATION

First Annual National Collegiate Conference

April 19-20

Marriott and Sheraton hotels
Corpus Christi, Texas

Sponsored by DPMA — The Association of Information Systems Professionals.

A conference targeted at IS students. Top IS speakers will present a variety of industry-specific topics and a look toward the future of the industry. A Career Forum will focus on job-search issues such as interviewing and resume preparation. Contact: Sheri Fox, DPMA, Park Ridge, Ill., (708) 825-8124, ext. 225

TRAINING

Training Directors' Forum 12th Annual Conference

May 2-5

The Buttes Resort
Tempe, Ariz.

Sponsored by Training Directors' Forum and *Training* magazine. The role of IS trainers and IS-enabled training will be explored in session topics such as technology-delivered instruction, multimedia classrooms, just-in-time training, corporate universities and World Wide Web-based training. Contact: Training Directors' Forum Conference, Minneapolis, Minn., (800) 707-7792

RECRUITMENT

Corporate Technical Recruiting Conference

June 2-5

Inverness Conference
Center & Resort
Denver

Sponsored by *Computerworld*. A conference aimed at corporate technical recruiters. Keynote speakers include adventurer and prize-winning photographer Brian O'Malley, who will discuss "Setting Goals, Accepting Challenges, Taking Risks: Working As a Team and Pursuing Your Dreams," and *Computerworld* editor Paul Gillin, who will speak about "The Top 10 Trends Affecting IS Careers." Contact: *Computerworld*, Framingham, Mass., (800) 488-9204

PROJECT MANAGEMENT

ProjectWorld

Aug. 5-8

Site to be announced
Washington

A conference for IS project managers and team leaders. Session topics include team-building, vendor partnering and performance measurement. Also will be held Dec. 11-13 in Santa Clara, Calif. Contact: ProjectWorld Conferences, Wellesley, Mass., (617) 431-9790

MAKING THE MARRIAGE WORK

Web site developers should make the following vows with their business relationships:

- Know your partners — pick project members who have worked together
- Have no secrets — open communication is the most important skill
- Patience is a virtue — both sides need time to learn the other's needs, limits
- Be tolerant — this is a new role for all involved, so don't rush things
- Meet in the middle — be willing to compromise on deadlines, expectations

A job by any other title

Changing technologies means new titles. For some, the responsibilities now defy description.

BY JILL VITIELLO

can the help wanted ads and home pages, and you'll see ads for jobs that didn't exist 10, or even two, years ago: network administrator, information systems team leader and webmaster.

Job titles are evolving. In the early 1990s, the demand for "business systems analysts" signaled corporate America's need for IS professionals who could communicate with people throughout the company and provide technical solutions for a bottom-line impact. Today, companies want IS professionals skilled in the Internet, but it's hard to find them by their titles alone.

"The title 'webmaster' is an oxymoron," says Yoon Chung, technical analyst in charge of network operations at American Express Publishing in New York and resident webmaster. "Not many people have more than two or three years' experience on the Web, and 'master' is a lofty title for so little experience."

How about Web wizard? That's the title Molly Collins created for herself while she was in charge of the World Wide Web site at Eastman Chemical Co. in Kingsport, Tenn. Collins says she created the offbeat title to differ-

entiate herself from webmaster or -mistress, which indicates technical responsibility as opposed to her bailiwick, which is content.

Lately, observers have noted a trend toward broader job titles that connote expertise and status.

"We see a trend away from specific, well-defined job titles and toward titles that cover wider responsibilities and indicate the broader skill sets required," says Mary Lowe, business services manager at The National Survey Group of William

What do YOU call a webmaster?

"Webmaster Report" cites these job titles to describe people involved with creating and maintaining their companies' Web sites:

- Interactive communications manager
- Manager of electronic commerce, marketing
- Manager of financial and administrative systems
- Senior administrator of on-line services
- Marketing communications manager
- Vice president of content

M. Mercer, Inc., a major compensation consulting firm that tracks and benchmarks job titles and their corresponding salaries.

Consider Richard Morris, whose

official title at Ortho McNeil Pharmaceutical Corp. in Raritan, N.J., is IS consultant. Morris has gone from programmer trainee to programmer to senior programmer/analyst and IS consultant. His job responsibilities are so broad they defy description, he says.

"My tasks vary from something as simple as moving PCs, to managing a companywide project and a team of six people, to making presentations to the board," Morris says.

"My colleagues' jobs are just as diverse. We're not 'siloes' anymore — we work across IS functional lines. I really couldn't come up with an accurate job title for all we have to do."

That makes setting salaries a bit more difficult than in the past. Companies determine salaries for new job titles by matching the necessary skills to jobs already classified within their compensation systems.

A hot job such as webmaster, for example, is "part analyst, part programmer, part artist and part rogue," according to Richard Won-



"The title 'webmaster' is an oxymoron. Not many people have more than two or three years' experience on the Web, and 'master' is a lofty title for so little experience."

— Yoon Chung, technical analyst in charge of network operations, American Express Publishing

der, founder of IS executive search firm Richard Wonder and Associates in New York. The shortage of Web-experienced IS professionals means qualified people can command \$100,000 from Fortune 10 companies to manage Web projects worldwide and about \$70,000 from Fortune 1,000 companies to administer their system, Wonder says.

"The most common title begins, 'I need someone who ...,' and then fill in the blank," says Paul Eichhorn, LAN support specialist at Desaulniers MacLeod Ltd., an IS search firm in Chicago.

Ironically, most of the people interviewed for this article didn't know their official job titles or didn't have one. When asked how they should be identified, many invented titles on the spot that at least partially described their functions and level of authority.

Vitiello is a freelance writer in East Brunswick, N.J.

Book reviews: Armed for the job-hunting revolution

On-line databases and electronic resume scanners change the way employees find new jobs

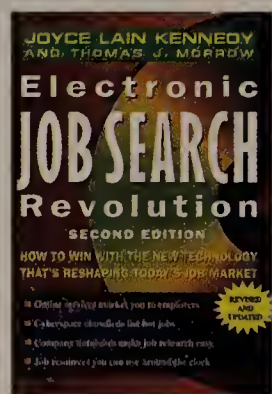
BY STEPHEN ALEXANDER

These two books are about the same topic: The way computer databases are changing the way people look for jobs. Both are written in nontechnical terms. But information systems professionals should read them for valuable tips about on-line and Internet databases that contain resumes, classified ads and employer information.

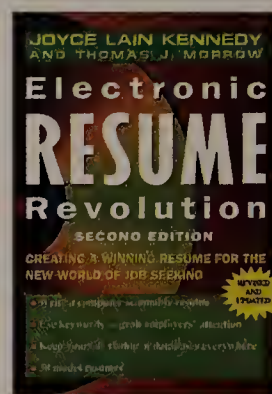
Electronic Job Search Revolution is the better book because it has more to say about developing a strategy for your electronic job search.

Read the second chapter, which talks about electronic resume databases for white-collar professionals and offers tips about costs and confidentiality. The chapter also explains that resumes that are sent to on-line jobs databases will be scanned by computer for key words.

To be successfully matched with a job, you must list your skills by their full technical names and include the number of years of experience in each skill. Any paraphrasing or generalizing decreases your chances. Don't be original in answering these ads, the authors say. "Work hard to make your cover letter and resume directly reflect



Electronic Job Search Revolution, Second Edition
By Joyce Lain Kennedy and Thomas J. Morrow
John Wiley & Sons, Inc., New York, 183 pages, \$12.95 (paperback)



Electronic Resume Revolution, Second Edition
By Joyce Lain Kennedy and Thomas J. Morrow
John Wiley & Sons, Inc., New York, 228 pages, \$12.95 (paperback)

the ad — yes, use the same key words and synonyms for those key words."

Electronic Resume Revolution explains how to create a resume and how an employer is likely to

use it. Read chapter one to learn why sending multiple resumes — each stressing different skills — to different people in the same company is no longer a good idea.

"When you double-up or triple-up on resumes, you probably will be spotted as a person who is unfocused or, worse, not straightforward," the authors quote one expert as saying.

The authors say electronic resumes should be written with nouns, not the action verbs your English teacher recommended.

The authors quote one expert as saying, "Nouns that state specific skills — Unix, [total quality management] and leadership, for example — are the best kinds of words to guarantee [computer] selection" of a resume. "The candidates with the greatest number of desired buzzwords — plus desired company experience — will rise to the top of the short list."

Because these job search books are written to appeal to a broad audience, some may dismiss them as lightweight. But they will be worth the purchase price if even one of these valuable tips helps your resume get noticed.

Alexander is a freelance writer in Edina, Minn.

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 65. Communications Systems/Public Utilities/Transportation
 70. Mining/Construction/Petroleum/Refining/Agriculture
 80. Manufacturer of Computers, Computer-Related Systems or Peripherals
 85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
 90. Computer/Peripheral Dealer/Dist./Retailer
 95. Other _____
(Please specify)
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 19. Chief Information Officer/Vice President/ Asst. VP IS/MIS/DP Management
 21. Dir./Mgr. MIS Services, Information Center
 22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech Planning, Administrative Services
 23. Dir./Mgr. Sys. Development, Systems Architecture
 31. Programming Management, Software Developers
 41. Engineering, Scientific, R&D, Tech. Management
 60. Sys. Integrators/VARs/Consulting Mgt.
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 11. President, Owner/Partner, General Mgr.
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(a) Solaris	(e) Mac OS
(b) Netware	(f) Windows NT
(c) OS/2	(g) Windows
(d) Unix	(h) NeXTstep
App. Development Products	<input type="checkbox"/> Yes <input type="checkbox"/> No
Networking Products	<input type="checkbox"/> Yes <input type="checkbox"/> No
- How many people are employed at this location and in your entire organization, including all of its branches, divisions and subsidiaries? (Select only one per column.)

	1. At this location	2. Entire Organization
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B. 10,000 - 19,999	<input type="checkbox"/>	<input type="checkbox"/>
C. 5,000 - 9,999	<input type="checkbox"/>	<input type="checkbox"/>
D. 1,000 - 4,999	<input type="checkbox"/>	<input type="checkbox"/>
E. 500 - 999	<input type="checkbox"/>	<input type="checkbox"/>
F. 100 - 499	<input type="checkbox"/>	<input type="checkbox"/>
G. 50 - 99	<input type="checkbox"/>	<input type="checkbox"/>
H. 20 - 49	<input type="checkbox"/>	<input type="checkbox"/>
J. 10 - 19	<input type="checkbox"/>	<input type="checkbox"/>
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 60. Government - State/Federal/Local
 65. Communications Systems/Public Utilities/Transportation
 70. Mining/Construction/Petroleum/Refining/Agriculture
 80. Manufacturer of Computers, Computer-Related Systems or Peripherals
 85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
 90. Computer/Peripheral Dealer/Dist./Retailer
 95. Other _____
(Please specify)
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 22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech Planning, Administrative Services
 23. Dir./Mgr. Sys. Development, Systems Architecture
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 41. Engineering, Scientific, R&D, Tech. Management
 60. Sys. Integrators/VARs/Consulting Mgt.
 - CORPORATE MANAGEMENT**
 11. President, Owner/Partner, General Mgr.
- Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

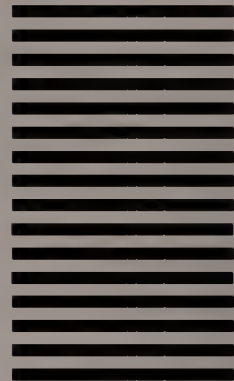
Operating Systems	
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(c) OS/2	(g) Windows
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App. Development Products	<input type="checkbox"/> Yes <input type="checkbox"/> No
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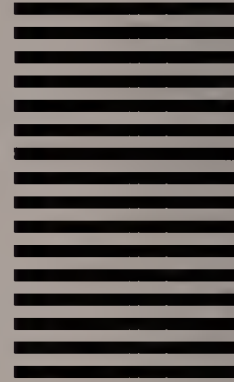
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■ TECHNICAL SUPPORT

A minimum of 3 years' experience in technical support of on-line services customers and working with customer requirements gathering and documentation; liaison between Development and Marketing. Job Ref. #IBMRAZ115

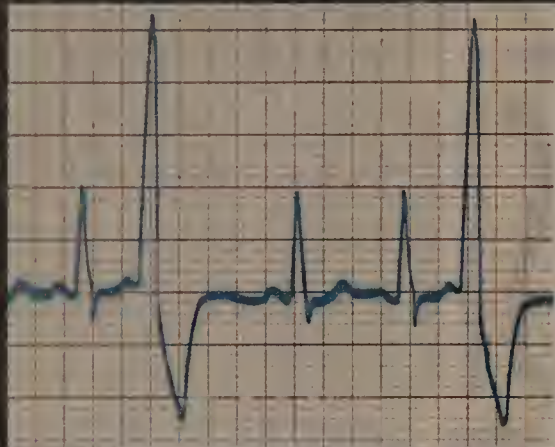
■ MARKETING COMMUNICATIONS

We are seeking talented individuals to join the Marketing Communications team. Minimum 5 years' experience in one or more of the following: promotions, advertising, direct marketing, sales training, and creation of brochures and sales support materials, including sales presentations, demos and Web page design. Experience in managing diverse projects within the on-line services or the Internet preferred. Job Ref. #IBMRAZ115

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Regional Scope: Michigan & Ohio

IS opportunities shine in the Rust Belt

By William Spain

Fortunately for information systems workers, the great Rust Belt job die-offs of the past two decades have had little effect on the demand for skilled computer personnel.

Quite the contrary. The few surviving traditional manufacturers are being forced to retool and modernize to compete, so there is no lack of opportunities in industrial centers such as Detroit and Cleveland. The job picture is similarly strong in Columbus, Ohio, where high tech has been big business for a long time.

Fuel for growth

In Detroit, the cycles of the automotive industry still drive the economy. And "the IS market is as powerful as I have seen in years," says Bob Schwartz, account manager of embedded systems/controls at information giant Electronic Data Systems Corp. The company is always looking for workers with "practical or process background in control systems [and] any of the formal software development methodology and processes," Schwartz says.

He says "a lot of the Unix-type skills are still

mented large-scale client/server applications beyond just the development or the technology," says Jim Dunleavy, general director of IS at Blue Cross/Blue Shield of Michigan.

"A lot of big companies in the Detroit area are building new IS infrastructures," Dunleavy says, "and we are all going after the same talent."

Adding to this problem, Dunleavy says, is that applicants "all claim to be experts in client/server, but it isn't as easy to go through and sort them out as it was in the days of Cobol, when you could just give them a test."

Chuck Muller, principal at AJM Professional Services in Troy, Mich., also describes the Detroit area as having "one of the most active markets I've seen in nine years."

"During the recessionary period, everybody cut their staffs to [the] bone," Muller says, but IS departments generally weren't hit as hard as other departments. As the regional economy recovers, auto firms, leasing companies, banks, service firms, health care and insurance companies are hiring everyone they can find, he says. Particularly in demand, Muller says, are client/server skills, networking/LAN administration and Microsoft Corp.'s Visual Basic skills.

"Because of the high demand and low supply, we are seeing salaries being driven up," he says.

Work available

In Cleveland, a city with a legendary civic inferiority complex, IS personnel can at least be confident of finding work. Lauren Patrick, president of Net-Force Development and Owl Consulting, says demand "is incredible" across the board.

"We are really searching for IDMS, DB2 and CICS people. There is still a real demand for some of the mainframe skills, and companies are willing to pay top dollar for them. The banks and the insurance companies need a lot of high-tech retooling, [but] financial institutions are generally not comfortable with the Internet because of security considerations," Patrick says.

Manufacturing firms, on the other hand, are usually looking for Internet skills, Patrick says. Also on the most-wanted list are people with C++, Visual Basic and Hypertext Markup Language skills. And "SAP is a huge, huge product here in town."

Shirley Bascomb, owner of Management Recruiters in North Canton, Ohio, sees "a real solid turnaround in the manufacturing sector. It has been reorganized, re-engineered and restructured." As a result, there is an increased demand for development skills in client/server technologies — from Visual Basic to Sybase, Inc. and Oracle Corp. relational database management systems and graphical user interfaces.

Bascomb says "the AS/400 market is also hot. You would think it is getting down to the end of its life, but IBM has turned it around."



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Sector: department stores

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The Limited, Inc.
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Sector: specialty retailer

WHAT RUST BELT EMPLOYERS WANT IS managers and recruiters say the following skills are most in demand:

CLEVELAND	COLUMBUS	DETROIT
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DB2	LAN	Software development
CICS	HTML	Unix
SAP	Client/server	Client/server
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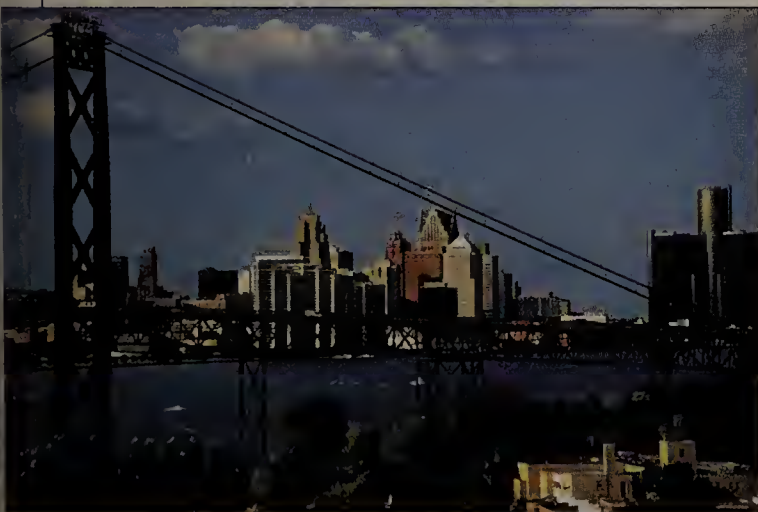
Strong economy

Internet skills are particularly hot right now in Columbus, which continues to have the strongest regional economy in Ohio. David Oberting, vice president/general manager of Management Recruiters in Columbus, says that "in 17 years, I have never seen anything explode the way the demand for IS people has in the last 18 months. Unix, C and C++ are just going bananas. Anyone who has these skills can write his own ticket."

Oberting also sees strength in the client/server, Oracle, Sybase, Cobol, CICS and Powersoft Corp. PowerBuilder markets. "Windows NT is beginning to take off, too," Oberting says. He says virtually all industries, from manufacturing to health care, are looking for skilled IS people.

"Everyone is upgrading. We could place 100; we could place 500. In central Ohio, anyone who can breathe is working," Oberting says.

Spain is a freelance writer in Boston.



In Detroit, strong competition in hiring is driving up salaries

very valuable." Many companies "haven't yet gotten beyond the learning curve."

Unlike the stereotype auto assembly line worker who attaches the same component to a car for his entire career, IS employees in the industry need to "have communications skills, flexibility and keep technically current," Schwartz says. "The most successful people in the market seem to be the ones who partner with customers and define their success on the customers' terms."

The health care industry is competing heavily for the IS job market in Detroit. "As we go through the transition to client/server and object-oriented programming, we need people [who] are really experienced in project management of client/server technology, people who have imple-

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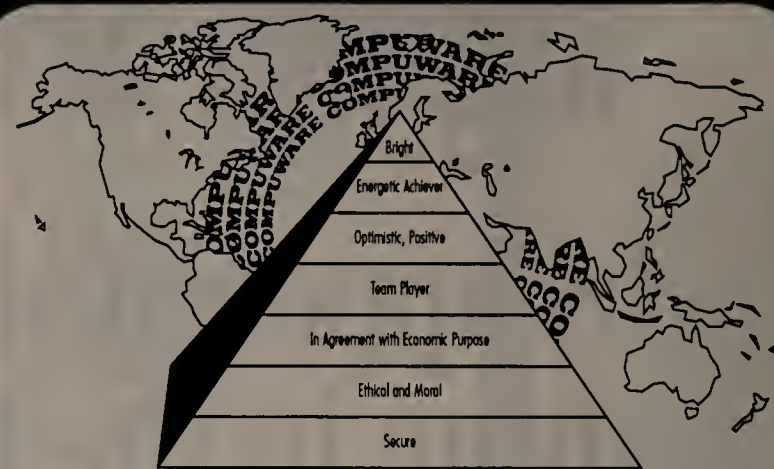
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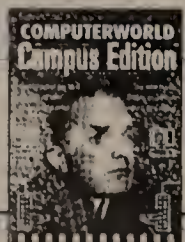
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For over 20 years HBO & Company brought together the industry's brightest talent to create and maintain systems that are unsurpassed in healthcare information management. We have current and anticipated challenges for computer and healthcare professionals specializing in the following areas:

Database Administrators (Job Code CPW-HLA)	Software Engineers (Job Code CPW-HLF)
Data Modeling Professionals (Job Code CPW-HLB)	Windows NT System Administrators (Job Code CPW-HLD)
Enterprise Consultants (Job Code CPW-HLK)	UNIX System Administrators (Job Code CPW-HLE)
Network Engineers (Job Code CPW-HLC)	Healthcare Software Professionals (Job Code CPW-HLQ)

To qualify for an invitation to our career fair, please call 7 days/week, 8am to midnight, EST. You will be asked to discuss your experience in the above areas. Please have this ad with you when you call.

(800) 495-HIRE

HBOC's job fair will be held at an Atlanta area event center from 10am-2pm and 4pm-8pm on March 25th.

For specific information on our company and positions, please visit our website: <http://www.cweb.com/hboc>. EOE M/F/D/V.



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Tropical Shipping is an international leader in the ocean freight industry, serving the Caribbean, with alliances worldwide. We currently have 2 Business Analyst positions available at our beautiful West Palm Beach, Florida office.

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Both positions require a degree and 5 yrs. exp. in systems analysis and project management.

Other experience required:

Experienced data administrator to support both enterprise and project level data management initiatives. Experienced in relational database theory, data modeling, current data management practices. Able to support implementation of data administration function within the organization.

OR

Lotus Notes 3.31 and Notes Mail, experience implementing Lotus Notes Solutions and Notes end user support. Notes 4.0 a plus.

We offer a competitive salary and benefits package, plus opportunities for challenge and growth. To apply, please apply/send resume and salary history to:

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Will need 3-5 years of experience consulting with FOCUS or other 4GL on multiple platforms (IBM MF, VAX, UNIX, etc.) and/or development of PC-based GUI tools in a client-server environment. Must have proven hands-on success in design and development projects using one of the following toolsets: FOCUS, EDA/SQL, PILOT-LIGHTSHIP & VISUAL BASIC. Additional project requirements for REXX, COBOL, MS ACCESS, SQL, PowerBuilder, C++, OLAP, RDBMS & CICS.

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Software Consultant: provide services to clients in design & development of business applications & systems; develop & implement process scheduling systems using Lotus Notes & SUN Unix to schedule distributed data loading into Sybase database tables; develop & implement activity tracking systems for financial analysts; decision making tools for analysis of secured investment systems; distributed electronic library systems; performance analysis tools for rapid prototyping of applications; systems for forecasting year-based financial investment levels & systems to replicate & refresh Lotus Notes design databases; design version control procedures; work extensively with OS/2, C, API, Sybase, DB2, ROBMS, Lotus Note Client Server, LAN, Unix & SUN Work Station. \$45,000/yr. 40 hrs/wk. M-F B.S. or equivalent in Computer Sc., Computer Eng. or Electronic/Communication Eng. & 2 yrs. exp. in job offered or 2 yrs. exp. as Systems Engineer, or Systems Analyst, or Associate Consultant. Exp. in related occupations must include use of OS/2, C, API, Sybase, DB2, ROBMS, Lotus Note Client Server, LAN, Unix & SUN Work Station. Job Location: Chattanooga. Submit resume to Charles Turner, Dept. of Employment Security, P.O. Box 11088, 311 MLK Blvd., Chattanooga, TN 37401 ATTN: J.O. #TN6200133.

Software Engineer, Pompano Beach, FL and other client locations: Analyze, design, develop, implement, enhance and modify customized applications against an ROBMS. Req'd. Masters degree in Comp. Sc. or Comp. Sc. Engg., or Comp. Engg. and 6 months exp. in the job duties or as a programmer analyst, 6 months of the experience must be with PowerBuilder, Oracle and/or Sybase, Unix or AIX object oriented programming. The experience may be concurrent. Master's degree may be substituted by Bachelor's degree in the same field and 2 years of experience in the job duties. M-F 8:00 am - 5:00 pm. 40hrs/wk. \$44,000/per yr. Send resume to: Job Service of Florida, 2660 W. Oakland Park Boulevard, Fort Lauderdale, FL 33311-1347 Re: Job Order Number FL-1379144.

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HARDWARE DESIGN ENGINEER to design, develop, and update the following products: IBM PC compatible Motherboards using the Intel family of microprocessors; High performance intelligent caching/non-caching SCSI Host Adapter Boards for EISA bus/PCI bus; High performance, fault tolerant RAID Controllers and Subsystems using PCI, SCSI and Serial SCSI Interfaces; High performance, intelligent/non-intelligent LAN/SCSI Host Adapter Boards for VL Bus and PCI bus; and Programmable Gate Arrays/ASICs for Board logic reduction using PCA0, ORCA0 and ViewLogic advanced CA0 tools. Test and debug hardware and device drivers using x86 Assembly programming language. Require: B.S. degree in Computer/Electrical/Electronics Engineering and four years experience in the job offered. Salary: \$50,000/year; M-F, 8:30 a.m. to 5:30 p.m. Send resume to: Xina Tuerke, Human Resources, American Megatrends, Inc., 6145-F Northbelt Pkwy., Dept. A, Norcross GA 30071.

PROGRAMMER/ANALYST. Position in Collierville, TN. Design, develop and test mainframe based manufacturing systems including material requirements, inventory, and purchasing software systems. Work with CA-CAS software package. Utilize IBM Mainframe 3090 using MVS/XA operating system, COBOL II, IDMS 10.2 & IDMS 12.0, AOSO, DB2, AOSG, OLM, OMLO, OLO, AOSC and MAPC. Must have a Bachelors in Mechanical Engineering. Must have 2 years of experience as Programmer/Analyst which should include one year of experience with CA-CAS software systems in the materials requirement, inventory and purchasing modules; COBOL II, AOSO, AOSG, OLM, OMLO, MAPC, DB2, AOSC, ISMS 10.2 and 12.0. 40 hrs/wk, 9-5, \$40,000/yr. Send resume to: Barbara Gallo-way, Job Service Program & Technical Support, Department of Employment Security, Volunteer Plaza, 11th Floor, 500 James Robertson Parkway, Nashville, TN 37245-1200. Refer to J.O. #TN6200101.

SENIOR SOFTWARE ENGINEER to analyze, design, develop, port, test, implement and support GUI-based client/server software for the telecommunications industry using C/C++, Object Oriented programming methodologies, UNIX and its utilities (Awk, Lex, Yacc, Cscope), Shell programming, REXX, Relational Databases, SQL, MVS, VM, GUI design using X-windows/Motif, CMVC for project tracking, and source code control systems (SCCS and IOSS) on UNIX workstations and IBM 3090 mainframes. Require: M.S. degree in Computer Science with one year of experience; At least six months of the required experience must be in software development for the telecommunications industry utilizing knowledge of the software architecture of telecommunications switches. Extensive paid travel to client sites within the U.S. Salary: \$30.00/hour; M-F, 8 a.m. to 5 p.m. Apply with resume to: Georgia Department of Labor, Job Order # GA 5949555, 2943 N. Druid Hills Rd., Atlanta, GA 30329-3909 or the nearest Department of Labor Field Service Office.

Software Engineer: Design, develop, document and support system management utilities. Single System Image Tools, Kernel mode device drivers involved in system boot, console, file system, Operating System Configuration, installation, backup, network maintenance, remote service and repair of a distributed client/server system. Development will be done using C++ in the Windows-NT operating system and debugging environment on Pentium Microprocessors. Knowledge of C, C++, Object Oriented Design, Analysis, and Development; Distributed Computing Systems and Applications; SunOS, X86/MS DOS, software engineering methodologies, Intel x86 hardware architecture, operating system design and development, kernel and I/O subsystem drivers, GUI design and development using X/Motif, Windows Application Programming Interfaces (API), and product maintenance and support required. M.S. in Computer Science and 1 yr. exp. in job offered or 1 yr. exp. as a Programmer/Analyst required. M-F, 9-5, 40 hrs/wk, \$41,241.20/yr. Send 2 resumes to: Case# 51409, Box 8968, Boston, MA 02114.

PROGRAMMER/ANALYSTS

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In exchange for your expertise, you'll enjoy a competitive compensation and benefits package. Forward resume in confidence to: **ALLIANCE ENTERTAINMENT, Human Resources, Code CW, 1401 N. University Drive, Suite 305, Coral Springs, FL 33071, Fax (305) 755-8526.** EOE, Drug-Free Workplace.



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Successful candidates must have familiarity with UNIX administration (HP-UX, AIX, DG/UX), C Programming, Shell Scripts, communications, TCP/IP. Knowledge of 4/GL, database and development environments. Responsibilities include developing systems written in low-level "C" and using UNIX system caller, development of UNIX shell scripts, systems configuration, programming kernel and performance tuning, and network programming (TCP/IP and SNA). Must have a minimum of 2 years experience. (Dept. USE)

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Requires: BS in Computer Science or Business Administration. A minimum 10 years of IS experience including a solid business applications development and support background. 2-4 years of experience in end-user computing/LAN/PC support, 2 years in client/server development and support, and 4 years in leading the planning and development of strategy for the implementation and use of new and emerging information technology. Some travel required.

Experience in the following technologies is a plus:

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KCS has offices in Pittsburgh, Philadelphia, Atlanta, Phoenix, Cleveland, and San Francisco.

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We require a degreed individual with strong MIS management background and recent programming experience in a 4GL language. A background in UNIX and UNIX based systems is necessary. Familiarity with communications software between mainframe and PCs along with a strong business background is required. Programming experience with Progress, HP hardware experience and manufacturing background is a plus.

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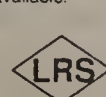
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Systems Engineer 40 hr/wk 9-5, M-F, \$53,000/yr. Analyze, design, program & test computer systems, develop & provide support systems, determine customer requirements. B.S. in computer science, 3 yrs. exp. as Systems Engineer to include minimum of 18 mos. exp. working with mainframe software & 18 mos. exp. working with client server software. Multiple positions available. "Employer paid ad". Send resume to 7310 Woodward Ave., Rm. 415, Detroit MI 48202. Ref. No. 00196.

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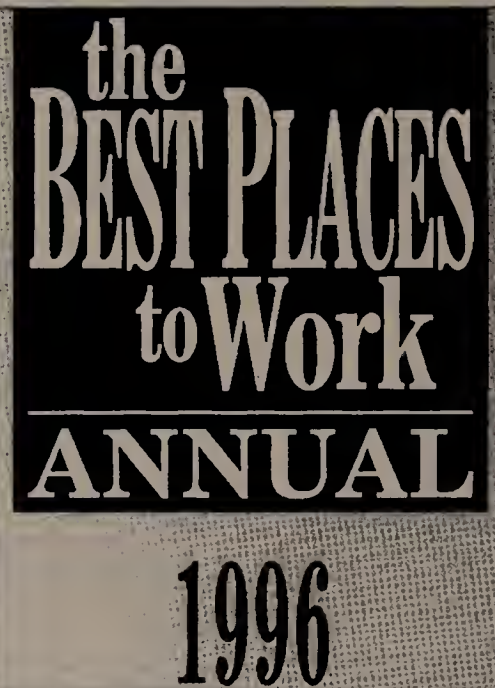
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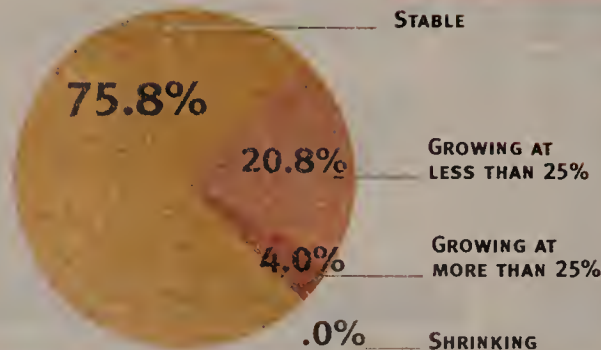
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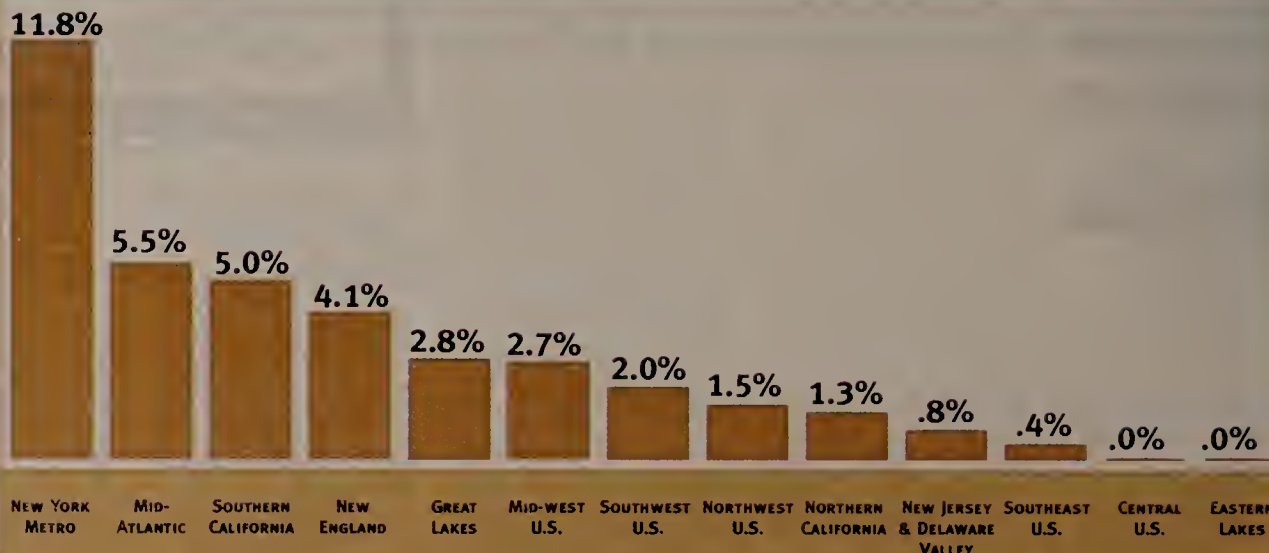


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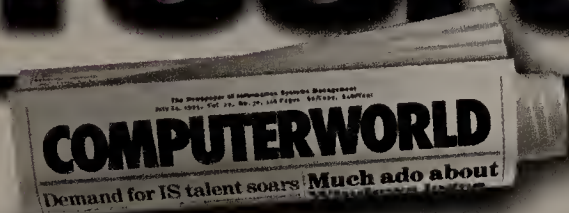
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An ISDN experience

The start-up can be challenging, but the benefits soon surface

By Chris DeVoney

The technology is turning 10 this year, and ISDN finally may be living up to its promises. But if my personal experience is any indication, what you get depends on where you live.

Moving to Integrated Services Digital Network (ISDN) makes sense. My Internet use is growing, personally and professionally. Many on-line services, such as The Microsoft Network (MSN) and CompuServe, offer ISDN dial-up connections. I also will review this year more than 50 products that require ISDN.

My ISDN needs are similar to those of most small businesses or remote offices that need to connect to the corporate LAN.

Most needs are satisfied easily by ISDN Basic Rate Interface service, in which two 64K bit/sec. B channels haul data and voice traffic and one 14K bit/sec. D-channel handles low-speed packet data and signaling. The service can be a dial-up one or dedicated point-to-point.

I had hoped that ISDN, which can carry a computer connection and a normal telephone call at the same time, would help reduce my overall phone costs. I could get ISDN and eliminate one of my three analog phone lines and the phone line dedicated to my computer and fax machine.

First Stop: Frustration

The first logical stop was to order service from the local phone company. But this step also may be the biggest obstacle to using ISDN service.

Your phone company may not be able to provide ISDN service if your office or residence is beyond the physical limits — usually 3½ to 5 miles — of the company's digital switching office.

Your phone company also may be unprepared for the digital avalanche. For example, it took several days and several phone calls just to find the right office within US West Communications, Inc. to place a service order. The one-week qualification process, to verify the distance between my premises and the switch, took three weeks.

My calls for customer service were greeted by voice mail and seldom returned. It was four weeks from the time I ordered the service to installation — twice the length of time that was initially promised to me.

Missing the connection

Completing the connection means obtaining and installing the ISDN adapter. A local Internet service provider and MSN were my ISDN gateways to the Internet.

My first hardware choice was 3Com Corp.'s Impact modem. This external modem has a built-in network terminator, a jack for a single analog phone and V.32 bis (14.4K bit/sec.) capabilities. The modem also can bond its lines, so the two 64K bit/sec. channels can be combined into one 128K bit/sec.

channel. But Impact exposed a problem in the serial ports of most PCs, whose top rate is 115K bit/sec.

An ISDN modem needs more configuration information than standard modems. This information, originally provided by the phone company, can be entered easily with the modem setup program. After installation, my first Internet ISDN connection

failed, and I spent the next few days calling my local Internet providers and 3Com.



I soon discovered another ISDN term, Synchronous Point-to-Point Protocol (Sync PPP), which is a recent development of the Internet community.

Two International Communications Union standards (V.110 and V.120) cover ISDN data connections. Both are asynchronous standards; most Internet service providers use synchronous Ethernet connections.

Most ISDN modems are equipped for Sync PPP but default to V.110 and V.120. After I made the correct change to the modem's initialization string, I made my first successful ISDN Internet connection, just one week after my service was installed.

My second hardware choice was an internal U.S. Robotics, Inc. I-Modem. Installation with Windows 95 was tricky and required manual port selection. I

Benefits and glitches

Several friends have suggested that any time I save in the first year of using ISDN will be squandered by the time it took to install the service, but there are major payoffs.

Making ISDN connections can save from five to 50 seconds compared with V.34 connections. For short, bursty connections such as electronic mail, cutting down that period when the modems synchronize can save up to 10% of connect-time cost.

Higher-speed throughput to the Internet is a benefit about 70% of the time.

Given the better speed, I don't avoid World Wide Web pages loaded with graphics. And the speed benefits gained on the Internet apply equally to remote connections to the main office network.

The ISDN modem requires little more attention than a standard modem. Most communications and remote access software works without change. But programs that top out at 28.8K bit/sec. or 38K bit/sec. lose the advantages of ISDN's speed.

In two years, ISDN equipment should reach the street prices of V.34 fax/modems (under \$200). Sync PPP and Multilink PPP, which is needed for tele- and videoconferencing, should be standard in equipment sometime this year. ■

DeVoney is a computer columnist in Seattle and has written more than 20 books about personal computing.

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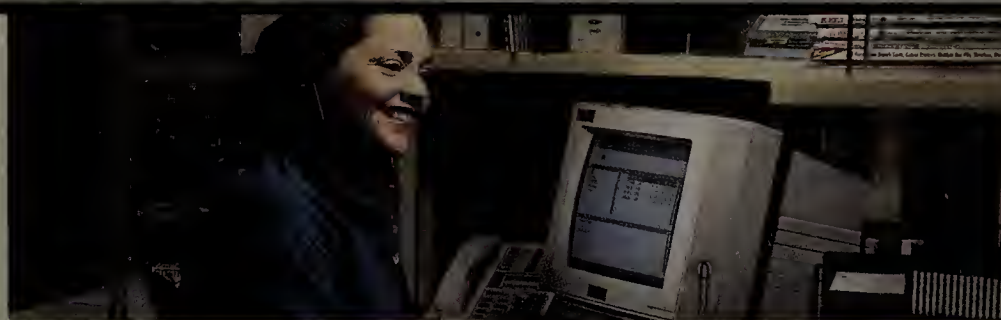


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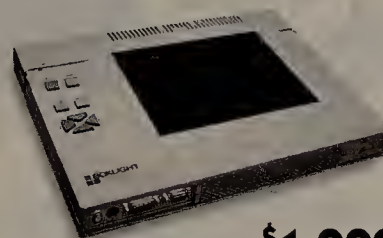
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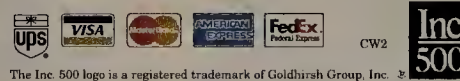
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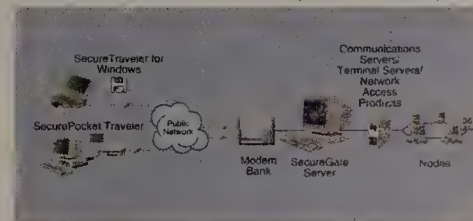
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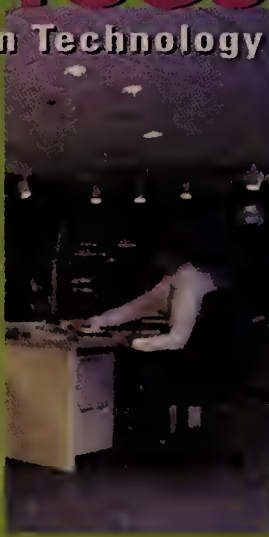
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IS professionals put stock in knowledge

By Steve Alexander

All investors seek to leverage their particular knowledge when buying stocks. But how much can or should IS managers use their knowledge of specific technologies and companies to beef up their portfolios?

"The stock market is a difficult place to make money unless you have special knowledge, and I think that IS managers ought to be able to profit from their knowledge," says Todd Dages, a San Francisco-based general partner in Battery Ventures, a Boston venture capital firm.

But there is a limit on how IS managers can use their knowledge. For example, buying a small company's stock when you know that your firm plans to place a substantial order that will affect that company's stock is insider trading, Dages says.

"Or maybe you are beta-testing a product, and you know it doesn't work. You could short the stock, but you can't do that because that crosses the line of insider trading," he adds.

According to the U.S. Securities and Exchange Commission (SEC), it is insider trading if the trade was based on non-public material information and if the trader got that information as a result of a fiduciary relationship.

But beyond the insider trading law, there are no hard-and-fast rules governing the investments of IS managers. Different companies have different policies.

"We don't have an IT-specific policy," says Charles Popper, vice president of

corporate computer resources at Merck & Co. in Whitehouse Station, N.J. However, the company does have a general policy that covers all purchasing activity. According to Popper, the policy prohibits employees from owning more than 1% of the outstanding securities of any publicly owned corporation with which Merck conducts business. In addition, any investment in such a corporation cannot exceed 10% of the employee's portfolio.

But there are gray areas. For example, if IBM stock was the only investment in an IS manager's portfolio, it would violate the 10% rule yet be too small a fraction of IBM's stock to represent a conflict of interest.

"Our assumption is that anything you did in dealing with IBM would be immaterial to their stock," he says.

Jim Webber, president of Omicron, an association in Mountain Lakes, N.J., that sells information technology management advice, says many companies prohibit employees from owning more than 5% of the stock of any firm with which the company does business.

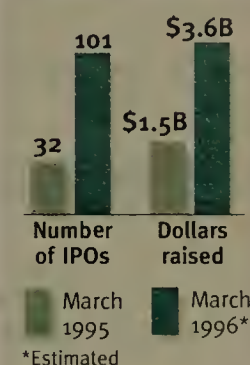
Jeff Marshall, senior managing director of the communications technologies group at Bear, Stearns & Co. in New York, doesn't keep a written policy but has nevertheless maintained a tough unwritten rule for 10 years. His employees can't invest in any companies that are significant vendors for Bear, Stearns. "Significant" means companies that have high profiles and companies with which Bear, Stearns places high-dollar orders.

Alexander is a freelance writer based in Edina, Minn.

The IPOs of March

High technology is leading a record surge in initial public offerings (IPO) this month. An expected 101 IPOs with a combined value of \$3.6 million will hit the market. That's the highest one-month tally since December 1983, which had 98 IPOs. Of the 101 IPOs, 38 with a combined value of \$1.3 billion are high-tech related, according to Richard Peterson, an analyst at Securities Data Co. in Newark, N.J. In 1995, there were 219 high-tech IPOs, the highest number since 1983, raising \$8.7 billion, he adds.

— Tam Harbert



Source: Securities Data Co., Newark, N.J.

Selected computer IPOs expected this month

ISSUER	NUMBER OF SHARES	FILING PRICE	UNDERWRITER
Micro Enhancement	1 million	\$12 to \$14	J. E. Liss
Sound Source Interactive	1.2 million	\$5 to \$7.50	Boston Group
Isocor	2 million	\$6 to \$7	Hambrecht & Quist
Workgroup Technology	3.4 million	\$8 to \$10	Alex. Brown & Sons
Lycos	3 million	\$10 to \$12	Hambrecht & Quist

Source: Securities Data Co., Newark, N.J.

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The Week in Stocks



Gainers

PERCENT

Ross Systems	48.7
Spyglass Inc.	30.6
Platinum Software	21.7
Systemsoft Corp.	21.7
America On-Line(H)	20.6
Intuit Inc.	19.8
Dell Computer Corp.	18.5
Netrix Corp.	17.6



Losers

PERCENT

Stratocom Inc.	-14.6
Micropolis Corp.(L)	-13.9
Group I Software	-12.8
Micrel Semiconductor Inc.	-9.8
Network Computing Devices	-9.8
Advanced Logic Research	-9.7
Intersolv Inc.	-8.7
Bachman Info. Systems	-8.5

DOLLAR

US Robotics	18.50
America On-Line(H)	9.25
Intuit Inc.	8.50
CompUSA Inc.(H)	7.25
Hewlett Packard Co.	7.00
Adaptec Inc.	6.38
Octel Communications Corp.(H)	6.25
Spyglass Inc.	6.13

Stratocom Inc.	-5.75
Nynex Corp.	-3.00
Southwestern Bell Corp.	-2.38
Sybase Inc.	-2.00
Bell Atlantic Corp.	-1.88
Newbridge Networks Corp.	-1.75
Arbor Software	-1.63
AT & T	-1.50

Industry Almanac

IBM's hot streak

IBM (NYSE:IBM) has paralleled Michael Jordan's Chicago Bulls lately: Both have been riding sizzling hot streaks. In January, IBM's stock was about \$89. By late February, it had risen more than 35% to \$125. In early March, it settled back down to about \$114. Is now the time to buy Big Blue, or would Nike Air Jordans be a better investment?

Buy Big Blue

"IBM's price is low right now, so it's a good time to start picking at it," says Roxane Googin, an analyst at Gruntal & Co. in Beverly Hills, Calif., who has IBM in her "outperform" category. "We think [the price] should go to around \$120 and stabilize."

Googin expressed a few reservations about the Armonk, N.Y., company, however: "IBM has a bit of a problem with earnings growth in the next quarter or so."

Buy the shoes

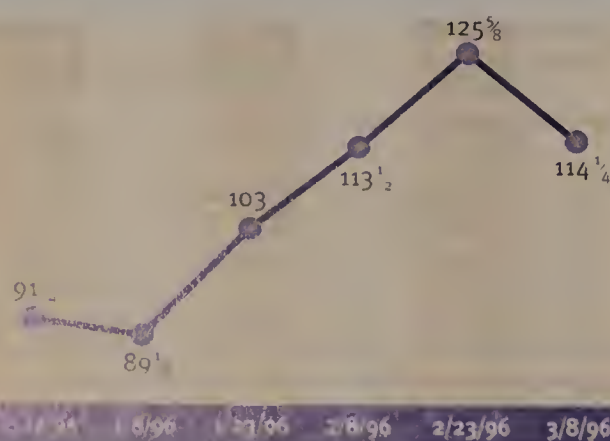
"I don't like IBM as an investment right now," says David Wu, an analyst at The Chicago Corp. in New York. "Their next two quarters are going to be rough."

Wu says the mainframe business, one of IBM's strengths, is still in decline. "The mainframe market is like an elevator going down. Lately, it has just stopped at one of the floors, but it will continue going down."

Wu says he will watch IBM in the next several months for the entertainment value. "Their earnings aren't likely to be good, but they will make for interesting reading." — *Stewart Deck*

Strong heartbeat

IBM's price upswing signals the company's solid health, analysts say.



EXCH	52-WEEK RANGE			MAR. 15WK NET WK PCT			EXCH	52-WEEK RANGE			MAR. 15WK NET WK PCT		
				3 PM	CHANGE	CHANGE					3 PM	CHANGE	CHANGE
Communications and Network Services							UP 1.80%						
COMS	53.63	25.75	3 COM CORP.	44.13	-0.94	-2.1	ORCL	55.00	28.00	ORACLE CORP.	48.75	0.25	0.5
AIT	66.88	40.88	AMERITECH CORP.	54.50	-0.88	-1.6	PMTC	38.25	17.88	PARAMETRIC TECHNOLOGY	36.88	2.38	6.9
AXE	22.13	16.63	ANIXTER INTL.	18.00	0.63	3.6	PARQ	17.50	6.63	PARCPLACE SYSTEMS INC.	7.88	0.00	0.0
APTS	15.00	2.75	APERTUS TECH.	4.25	0.50	13.3	PSFT	57.75	19.63	PEOPLESOFT	54.50	6.00	12.4
T	68.88	47.88	AT & T	61.25	-1.50	-2.4	PTEC	16.13	6.75	PHOENIX TECHNOLOGIES	12.88	0.00	0.0
ASND	49.63	7.25	ASCEND COMMUNICATIONS (H)	49.63	3.69	8.0	PSQL	16.88	3.13	PLATINUM SOFTWARE	7.00	1.25	21.7
BNYN	18.63	6.00	BANYAN SYSTEMS INC.	8.00	0.00	0.0	PLAT	26.00	11.25	PLATINUM TECHNOLOGY	14.25	-0.25	-1.7
8AY	50.00	21.75	BAY NETWORKS INC.	35.50	2.88	8.8	PRGS	38.00	19.50	PROGRESS SOFTWARE CORP.	21.50	-0.06	-0.3
88N	48.75	16.50	8BN CORP.	29.63	0.00	0.0	RN80	26.75	15.13	RAINBOW TECHNOLOGIES INC.	19.75	0.00	0.0
BEL	80.38	51.50	BELL ATLANTIC CORP.	62.00	-1.88	-2.9	ROSS	7.75	2.19	ROSS SYSTEMS	3.63	1.19	48.7
BLS	45.88	29.13	BELLSOUTH CORP.	36.63	-1.38	-3.6	SCOC	15.00	5.50	SCO INC.	6.25	-0.25	-3.8
BRKT	34.25	9.13	BROOKTROUT TECHNOLOGY (H)	34.25	4.13	13.7	SDTI	67.50	12.00	SECURITY DYNAMICS TECH.	59.25	-0.25	-0.4
CS	87.75	42.25	CABLETRON SYSTEMS	69.50	-0.25	-0.4	SKEY	51.75	13.38	SOFTKEY INTERNATIONAL INC.	20.69	-1.06	-4.9
CSCC	83.25	20.38	CASCADE COMMUNICATIONS (H)	81.00	2.50	3.2	SPCO	5.13	2.19	SOFTWARE PUBLISHING CORP.	3.44	0.50	17.0
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CSCO	51.00	16.75	CISCO SYSTEMS INC.	46.75	3.13	7.2	SOTA	14.88	6.63	STATE OF THE ART	13.38	0.56	4.4
CLIX	11.38	6.00	COMPRESSION LABS INC.	6.38	-0.38	-5.6	SSW	72.63	32.88	STERLING SOFTWARE INC. (H)	69.63	1.75	2.6
CMNT	12.75	4.00	COMPUTER NETWORK TECH.	5.50	0.00	0.0	SDRC	33.63	8.00	STRUCT. DYNAMICS RESEARCH (H)	33.31	1.94	6.2
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GTE	49.25	31.88	GTE CORP.	41.75	-1.00	-2.3	TRUV	10.13	3.88	TRUEVISION CORP.	7.00	0.50	7.7
MCIC	31.00	19.09	MCI COMMUNICATIONS CORP.	28.00	-1.25	-4.3	VIEW	15.13	8.38	VIEWLOGIC SYSTEMS	10.69	0.31	3.0
MICM	12.50	5.50	MICOM COMMUNICATIONS CORP.	9.63	0.38	4.1	VMRK	21.50	5.75	VMARK SOFTWARE INC.	7.75	0.13	1.6
MNPI	33.38	9.13	MICROCOM INC. (H)	32.00	-0.75	-2.3	WALK	11.13	4.63	WALKER INTERACTIVE SYSTEMS	10.13	0.38	3.8
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NETG	46.50	22.75	NETWORK GENERAL	43.50	4.75	12.3	NETC	91.50	19.00	NETCOM ON-LINE	25.13	1.63	6.9
NN	53.25	25.00	NEWBRIDGE NETWORKS CORP.	48.13	-1.75	-3.5	NSCP	87.00	22.88	NETSCAPE COMM. CORP.	41.75	3.25	8.4
NT	50.88	31.50	NORTHERN TELECOM LTD.	48.75	0.50	1.0	PSIX	29.00	8.75	PSINET	10.50	1.31	14.3
NOVL	23.25	11.38	NOVELL INC.	12.31	0.06	0.5	QDEK	39.50	3.38	QUARTERDECK CORP.	17.88	1.25	7.5
NYN	59.25	39.25	NYNEX CORP.	48.63	-3.00	-5.8	SPYG	61.00	13.25	SPYGLASS INC.	26.13	6.13	30.6
OCTL	45.50	18.00	OCTEL COMMUNICATIONS CORP. (H)	45.50	6.25	15.9	UUNT	98.75	21.75	UUNET TECH.	27.25	1.00	3.8
ODSI	43.25	15.50	OPTICAL DATA SYSTEMS INC.	24.00	2.25	10.3	Semiconductors						
PCTL	44.72	14.00	PICTURETEL CORP.	34.94	-0.81	-2.3	AMD	39.25	16.13	ADVANCED MICRO DEVICES	17.63	0.00	0.0
PTON	10.75	4.75	PROTEON INC. (L)	5.25	0.13	2.4	ADI	30.13	16.63	ANALOG DEVICES INC.	29.00	3.38	13.2
RACO	7.88	4.25	RACOTEK INC.	4.63	-0.38	-7.5	CHPS	15.88	7.13	CHIPS AND TECHNOLOGIES	8.38	0.13	1.5
RETX	5.50	1.81	RETX	4.00	0.25	6.7	CRUS	61.13	16.75	CIRRUS LOGIC	18.38	0.00	0.0
SFA	24.88	11.38	SCIENTIFIC ATLANTA INC.	18.25	2.00	12.3	CY	27.75	10.00	CYPRESS SEMICONDUCTOR CORP.	12.50	0.88	7.5
SHVA	88.75	27.00	SHIVA CORP. (H)	86.25	-1.25	-1.4	CYRX	49.75	18.25	CYRIX	23.44	2.44	11.6
SBC	60.25	41.13	SOUTHWESTERN BELL CORP.	51.00	-2.38	-4.4	INTC	78.38	40.13	INTEL CORP.	58.63	5.50	10.4
FON	45.50	28.25	SPRINT CORP.	35.38	-1.00	-2.7	LSI	62.50	22.50	LSI LOGIC CORP.	28.25	2.75	10.8
SMSC	23.50	12.50	STANDARD MICROSYSTEMS CORP.	15.88	-0.63	-3.8	LSCC	43.00	23.00	LATTICE SEMICONDUCTOR	28.63	1.19	4.3
STRM	44.50	16.00	STRATACOM INC.	33.75	-5.75	-14.6	MCRL	32.50	12.50	MICREL SEMICONDUCTOR INC.	12.63	-1.38	-9.8
TBIT	8.63	2.38	TELEBIT CORP.	4.13	-0.31	-7.0	MU	94.75	27.50	MICRON TECHNOLOGY (L)	31.88	2.88	9.9
USRX	134.00	29.75	US ROBOTICS	134.00	18.50	16.0	MOT	82.50	44.75	MOTOROLA INC.	55.00	2.63	5.0
USW	48.38	28.38	US WEST INC.	30.63	-1.25	-3.9	NSM	33.63	14.13	NATIONAL SEMICONDUCTOR	14.88	0.25	1.7
XIRC	16.00	8.88	XIRCORP.	10.44	-0.19	-1.8	SERA	28.75	9.75	SIERRA SEMICONDUCTOR	22.50	1.63	7.8
XYLN	60.50	53.00	XYLAN CORP.	55.75	0.75	1.4	TXN	83.75	42.75	TEXAS INSTRUMENTS	51.75	2.63	5.3
PCs and Workstations							UP 0.00%						
AALR	9.63	4.25	ADVANCED LOGIC RESEARCH	7.00	-0.75	-9.7	VLSI	39.13	10.75	VLSI TECHNOLOGY (L)	12.50	0.75	6.4
AAPL	50.13	25.00	APPLE COMPUTER INC. (L)	25.63	-0.38	-1.4	WWTK	6.88	1.25	WEITEK	1.63	-0.13	-7.1
ASTA	19.13	5.50	AST RESEARCH INC. (L)	5.75	-0.06	-1.1	WDC	22.13	13.13	WESTERN DIGITAL CORP.	18.75	0.75	4.2
CPQ	56.75	31.13	COMPAQ COMPUTER CORP.	39.75	0.88	2.3	XLNX	55.50	20.75	XILINX	36.75	4.25	13.1
DELL	49.38	21.25	DELL COMPUTER CORP.	33.25	5.19	18.5	ZLG	54.13	28.50	ZILOG INC.	33.13	1.13	3.5
GATE	37.50	16.00	GATEWAY 2000 INC.	27.50	3.13	12.8	Peripherals and Subsystems						
HWP	104.13	59.13	HEWLETT PACKARD CO.	98.75	7.00	7.6	APCC	25.88	7.88	AMERICAN POWER CONVERSION	10.38	-0.25	-2.4
MUEI	29.88	9.00	MICRON INTERNATIONAL INC. (L)	10.25	0.88	9.3	ADPT	56.38	29.25	ADAPTEC INC.	53.13	6.38	13.6
NIPNY	75.13	49.38	NEC AMERICA	54.50	-0.50	-0.9	CBEX	13.13	3.63	CMBEX CORP.	5.88	0.13	2.2
SGI	45.63	21.13	SILICON GRAPHICS	25.13	0.38	1.5	CGN	7.25	2.25	COGNITRONICS CORP.	5.19	0.31	6.4
SUNW	57.13	16.13	SUN MICROSYSTEMS INC.	46.75	2.00	4.5	CREAF	14.13	5.88	CREATIVE TECHNOLOGIES INC.	7.25	0.56	8.4
Large Systems							UP 3.23%						
AMH	13.63	6.75	AMDAHL CORP.	9.25	0.38	4.2	RACE	13.13	3.63	DATA RACE INC.	4.75	-0.13	-2.6
CYR	29.25	17.63	CRAY RESEARCH INC.	28.63	0.25	0.9	DTM	9.38	4.13	DATARAM CORP.	4.44	-0.31	-6.6
DGN	19.13	6.75	DATA GENERAL CORP.	15.50	0.63	4.2	EMC	27.38	13.00	EMC CORP.	20.63	0.38	1.9
DEC	76.50	31.50	DIGITAL EQUIPMENT CORP.	64.13	2.00	3.2	EMXL	28.50	6.38	EMULEX CORP.	9.75	-0.50	-4.9
IBM	128.88	81.25	IBM	119.00	4.00	3.5	ESCC	25.25	13.00	EVANS AND SUTHERLAND	23.25	1.00	4.5
MDCD	13.00	3.00	MERIDIAN DATA INC.	10.75	0.75	7.5	EXBT	18.13	10.00	EXABYTE	15.13	1.25	9.0
NETF	7.75	4.25	NETFRAME	4.88	0.25	5.4	IISLF	4.25	1.50	INTELLIGENT INFO. SYSTEMS	2.13	-0.13	-5.6
SQNT	25.38	10.13	SEQUENT COMPUTER SYS. (L)	10.38	-0.63	-5.7	IOMG	20.00	2.25	IOMEGA CORP.	19.50	2.88	17.3
SEQS	10.00	3.63	SEQUOIA SYSTEMS INC.	3.75	-0.13	-3.2	IPLSA	7.88	2.50	IPL SYSTEMS INC.	4.88	0.50	11.4
SRA	36.13	23.00	STRATUS COMPUTER INC.	27.50	0.00	0.0	KMAG	37.50	14.50	KOMAG INC.	27.44	-1.19	-4.1
TDM	17.75	8.75	TANDEM COMPUTERS INC. (L)	9.00	0.13	1.4	MLIS	7.50	1.25	MICROPOLIS CORP. (L)	1.94	-0.31	-13.9
TRCD	5.75	2.00	TRICORD SYSTEMS	4.13	0.38	10.0	MTSI	37.75	11.25	MICRO TOUCH SYSTEMS INC.	15.25	0.50	3.4
UIS	13.63	5.50	UNISYS CORP.	6.50	0.63	10.6	PEAK	34.75	16.75	PEAK TECHNOLOGY GROUP	22.50	1.00	4.7
Software							UP 4.33%						
ADBE	74.25	30.00	ADOBE SYSTEMS INC.	34.50	2.50	7.8	PNCL	19.75	5.88	PINNACLE MICRO INC.	8.00	-0.25	-3.0
AMSWA	8.75	3.50	AMERICAN SOFTWARE INC.	4.13	0.25	6.5	PTNX	38.75	13.50	PRINTRONIX INC.	18.00	0.00	0.0
APLX	41.75	8.25	APPLIX INC.	39.50	4.50	12.9	AQM	7.13	3.25	QMS INC.	5.25	0.50	10.5
ARSW	48.50	28.75	ARBOR SOFTWARE	42.88	-1.63	-3.7	QNTM	28.50	13.75	QUANTUM CORP.	19.06	1.94	11.3
ACAD	53.00	27.75	AUTODESK INC.	37.25	3.00	8.8	RGUS	14.13	0.94	RADIUS INC.	1.06	0.00	0.0
BACH	11.88	3.88	BACHMAN INFO. SYSTEMS	9.38	-0.88	-8.5	SEG	67.75	25.00	SEAGATE TECHNOLOGY	58.75	3.25	5.9
8GSS	42.00	26.00	BGS SYSTEMS INC.	35.50	1.00	2.9	STK	31.75	17.88	STORAGE TECHNOLOGY	26.75	0.25	0.9
BMCS	59.25	27.63	BMC SOFTWARE INC.	59.25	4.50	8.2	TEK	61.88	29.75	TEKTRONIX INC. (L)	33.50	3.75	12.6
BOOL	26.38	18.25	BOOLE AND BABBAGE	23.25	0.63	2.8	XXR	144.63	109.38	XEROX CORP.	132.63	5.38	4.2
BORL	21.25	7.75	BORLAND INT'L INC.	19.94	1.19	6.3	Services						
BO8Y	76.50	28.75	BUSINESS OBJECTS	74.13	5.63	8.2	AMSY	26.38	11.38	AMERICAN MGMT. SYSTEMS	24.63	0.25	1.0
CESH	3.94	1.38	CE SOFTWARE	3.00	0.00	0.0	ANLY	37.75	20.25	ANALYSTS INT'L	35.75	-0.38	-1.0
CYE	27.88	12.38	CHEYENNE SOFTWARE INC.	22.38	0.25	1.1	AUO	43.38	30.25	AUTO DATA PROCESSING	40.25	2.25	5.9
COGNF	63.25	18.75	COGNOS INC. (H)	55.25	3.56	6.9	CATP	61.00	27.25	CAMBRIDGE TECH. PARTNERS	48.25	2.00	4.3
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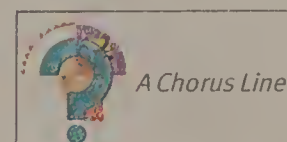
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a (hint)

b

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The Back Page

Who's who here?

Computerworld crossword by Rick Bennett

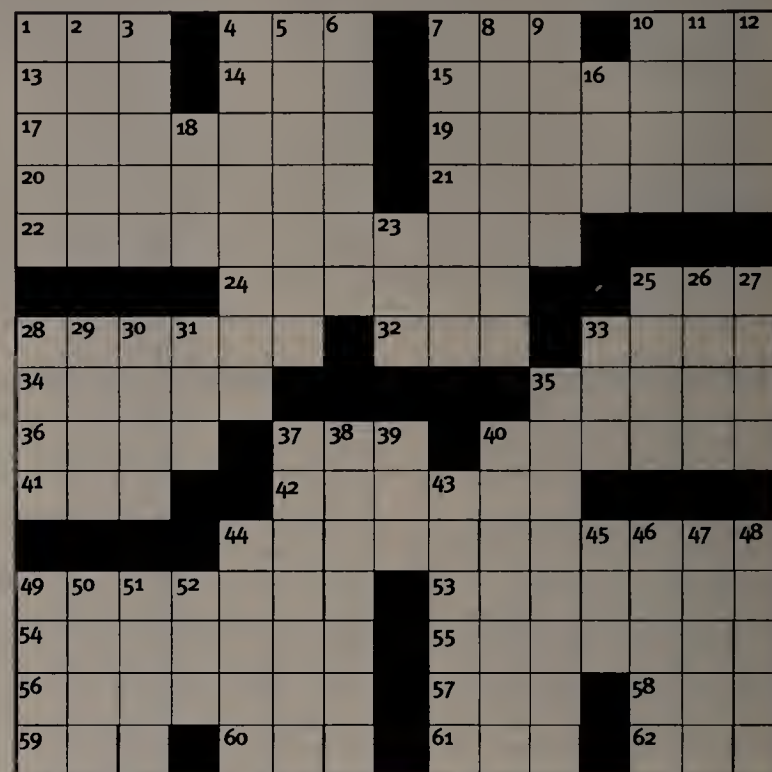
Who's who at *Computerworld*? The editors and writers make this publication what it is today. See if you can find four CW superstars . . . without sneaking a peek at the masthead.

ACROSS

- 1 A close-sleeved linen liturgical vestment
4 Cast out
7 Bro. or sis.
10 Academic meas.
13 Ovine cry
14 K-P sandwich, less the M
15 Stupid old-tech. recording?
17 Sad sis. city of Helena?
19 Boston fault-tolerant computer maker
20 Specific Haitian magic spell
21 Flow
22 WHAT IS THE EDITOR'S CHAIR?
24 Currents
25 Latin for hail
28 Expels
32 Compass heading
33 Pi x R-squared
34 Gold measure
35 Volcanic craters
36 Morally objectionable behavior
37 Keyboard key
40 Avaricious
41 A baglike structure in a plant or animal
42 Travelers
44 FORMER EDITOR
49 A way to lessen
53 About the womb
54 Indispensable open systems device?

DOWN

- 5 Group of irked people
6 Young
7 Cowards
8 Utmost
9 Publicizes
10 "-- grip!"
11 Leak solution
12 Recess for an altar
16 A period of sleeping
18 Metric weight unit
23 Pretend falsely
25 Semite
26 Assembly language operator
27 Rider or money preceeder
28 Supplements with difficulty
29 Bane of Microsoft?
30 -- Clapton, musician
31 Silicon Valley state, abbr.
33 Desert Storm nemesis, abbr.
35 CW VIEWPOINT EDITOR'S MOM
37 In a corny way
38 Controls lateral motion
39 Package, abbr.
40 Give satisfaction to
43 In a way, washed
44 In a way, restrained
55 Colossal
56 Hybrid between tangerine and grapefruit
57 A newt in its terrestrial stage of development
58 Drunk
59 Type of PC mem.
60 Field force unit
61 Elements
62 Printer's spaces
50 Children's computer prog.
52 Pre-metamorphic insect
53 An arm or outlet
54 MINDY OF CW'S MOBILE COMPUTING



No. 3

Solution on previous page.

rbennet9@ted.net

- 45 A major division of geological time
46 Washer cycle
47 Point of skull

- 48 Factions
49 Mainframe system time bomb field

- 50 Mild yellow Dutch cheese made in balls
51 Winnows
52 A rural fuel, abbr.

For questions or comments, contact the author at rbennet9@tcd.net.

Inside Lines

Offensive maneuvers

Sun Microsystems plans to announce Solaris-based World Wide Web server software next month at Network/Interop. In keeping with Sun's disdain for all things Microsoft, the Solaris Internet Server is targeted specifically at the Windows NT-based Internet Information Server that emerged from Redmond, Wash., recently. What about Netscape and its market-leading Web server software? Perhaps Sun is applying the realpolitik theory that the enemy of my enemy is my friend.

Primary diversions

Web surfers who mistype the domain name when seeking the latest news about the White House denizens may encounter Beavis and Butthead instead of Clinton and Gore. Web designers at Why? InterNetworking in Washington mimic the www.whitehouse.gov home page at their site (www.whitehouse.net) but add random changes. These include a slide show about the First Lady's evolving hairstyle, a "What's Cookin'" topic that highlights the president's culinary preference for the Golden Arches and a photo of Gennifer Flowers beside the "Presidential Pastimes" topic.

Local carriers link up

Ameritech and GeoNet will soon announce plans to jointly develop GeoNet's Application Manager, a package designed to sit on the public network and let carriers provide users with flexible data networking services that link distributed sites. A source close to the Vero Beach, Fla.-based GeoNet, said Ameritech could offer services based on Program Manager later this year.

Digital friendships

Two Stanford University professors have concluded that people interact with computers about the same way they do with other people. In a study, subjects were asked to perform the same task on their own computer and an identical machine; they consistently rated their own computer's performance higher, possibly to avoid offending their "co-worker."

Microsoft goes Hollywood

Corporate tongue in cheek, Microsoft last week treated users to a roaringly funny video satirizing Internet market hype. The first clip, complete with subtitles, showed an Italian man confessing sins. "I tried to hack in to the

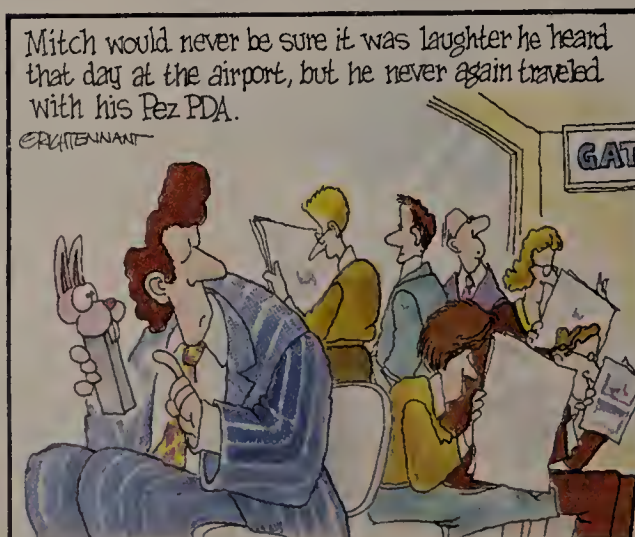
Vatican mainframe," the weeping man revealed. The priest suggested he surf <http://www.mom.suffering.nun> for penance. Later, a spoof of those make-money-fast videos played. The spot, "Web of Wealth," featured a wide-eyed "Bill," played by Gates himself, who marveled about how easy it is to get into the on-line services biz.

Fore! WAN access products on the way

ATM market leader Fore Systems in Warrendale, Pa., this week is expected to announce an array of WAN access products that help users justify ATM WANs by aggregating voice, data and video traffic at remote sites on single wide-area ATM links. The products were developed largely by CellAccess Technology in Los Gatos, Calif. Fore announced plans to buy CellAccess for \$50 million to \$55 million last December.

Ballistic Bill? In a talk with reporters at Microsoft's developer conference last week, CEO Gates railed, huffed and chuckled derisively when quizzed about how Microsoft intends to fit in to the Internet. "You're confused!" he told the group — and more than once. Apparently, we all were. Gates had a hard time explaining how, exactly, IS can best figure out when to use an intranet, when to use Microsoft Exchange or a groupware product such as Notes and when to leave well enough alone. Then he claimed there was no Internet battle between Netscape and Microsoft. "You [media] people overdramatize these things, but that's your job." We thought our job was to keep you informed, but you can add some drama to our pages with your news tips by calling Computerworld's 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Patricia Keefe can be reached by phone at (508) 820-8183 or via the Internet at tish_keefe@cw.com.

The 5th Wave by Rich Tennant



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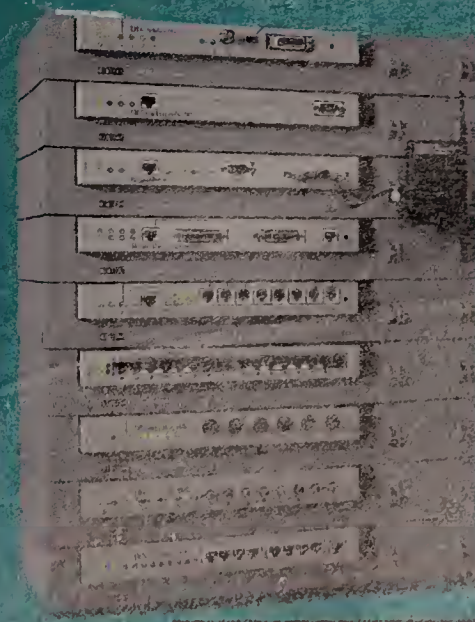
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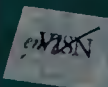
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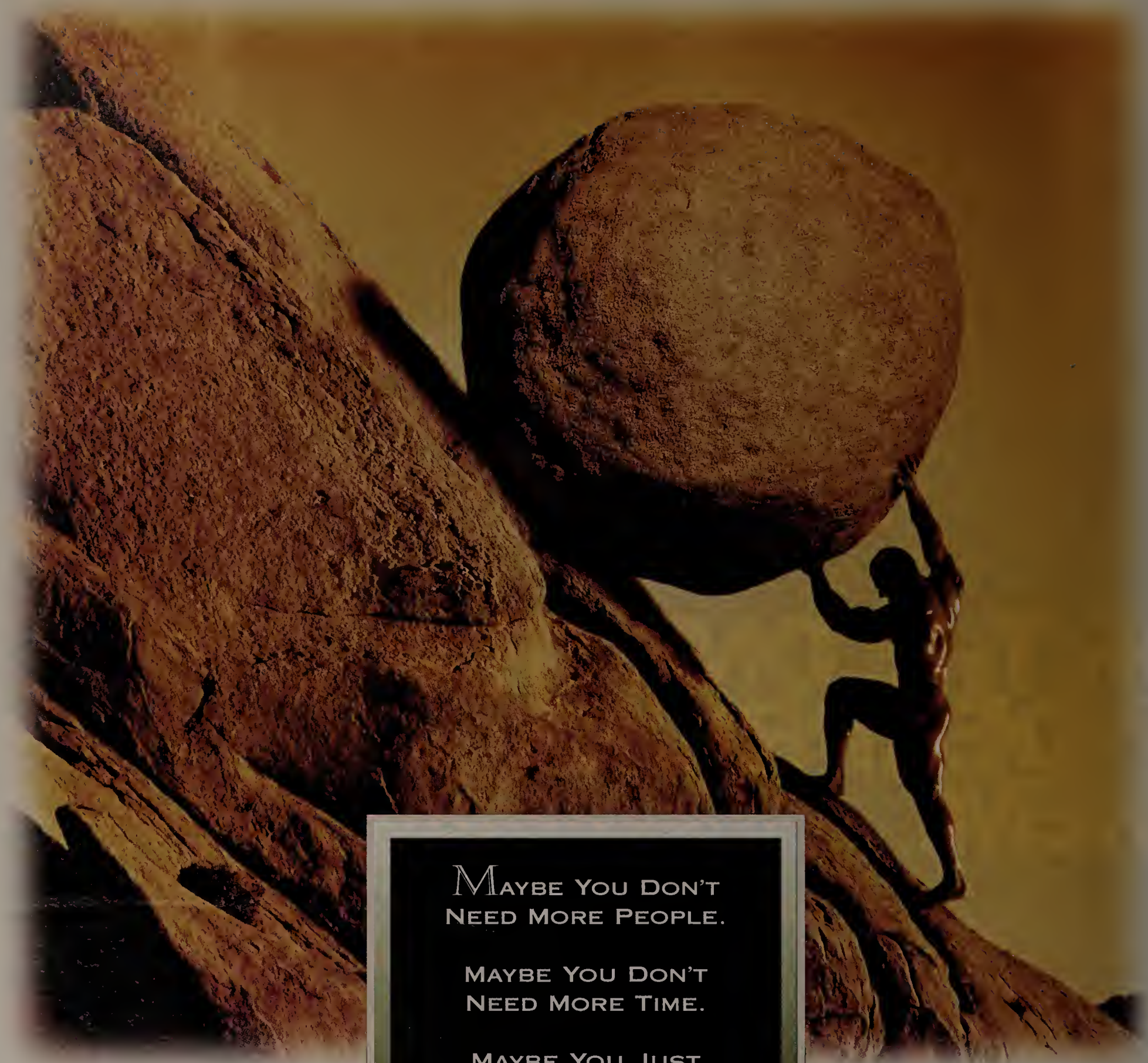
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